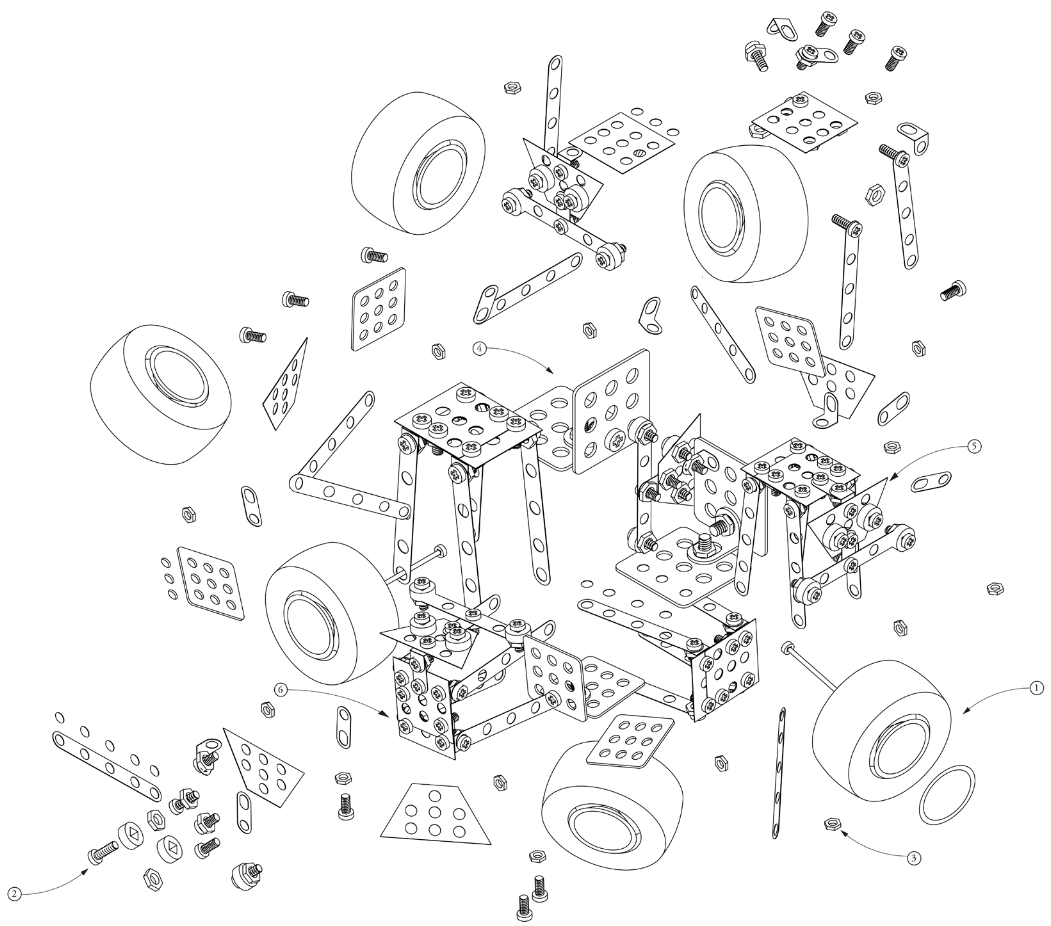
Andres Feng

Selected Works

Design Portfolio

Assemblage



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TERRA-TEXTURA

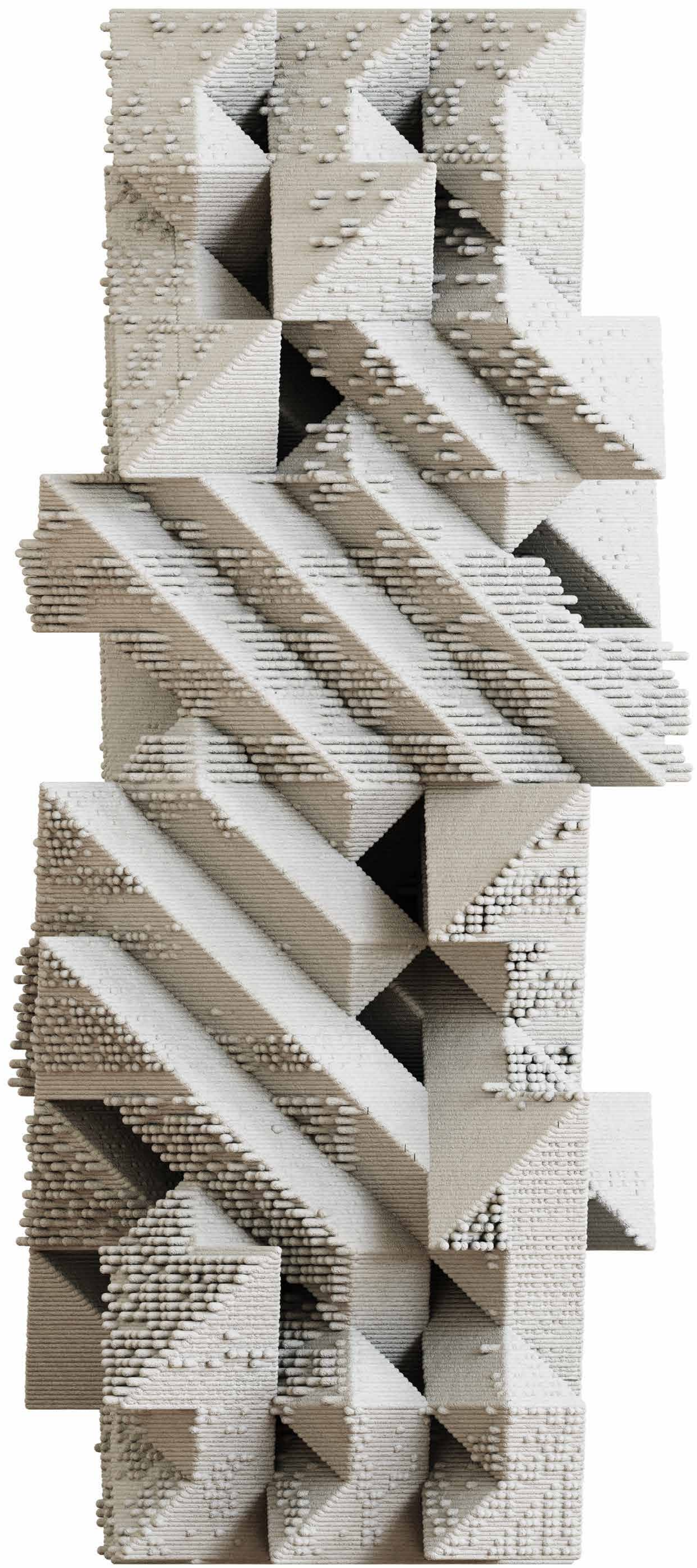
Project Partners: Claudia Campuzano and Kjo Zhuang
Professor: Andrew Sanders
Project: Gardenscape Brick Assembly

This project explores combinatorial polyhedral geometry and its application through clay deposition and additive manufacturing. The geometry is primarily influenced by architects of the Philadelphia School such as Louis Khan, Anne Tyng, Robert Venturi, Tony Smith, and Robinson Fredenthal who began to develop and understand complex geometrical assemblies and the logic of space filling tetrahedrons and octahedrons

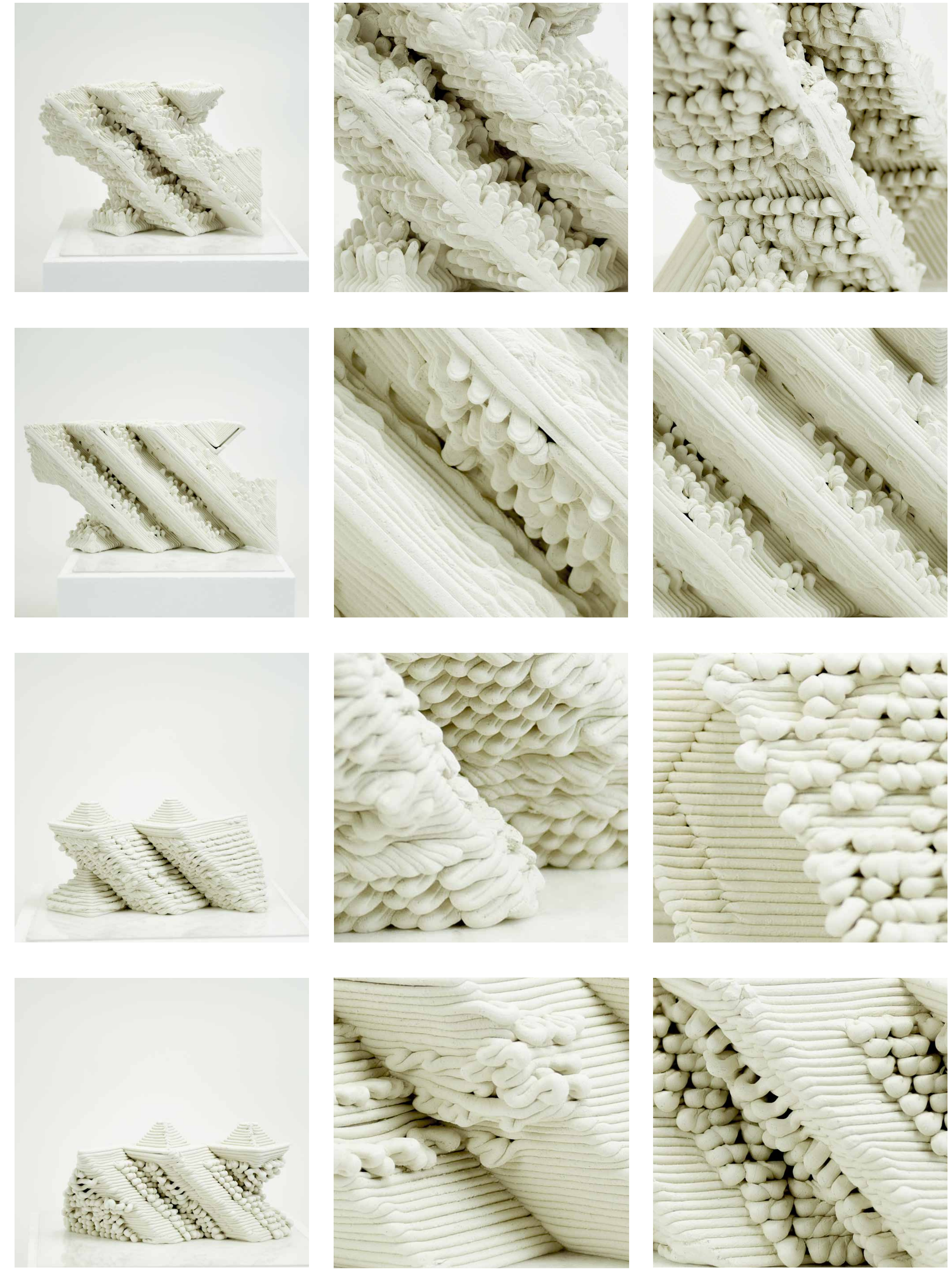
The project was executed through a software / hardware routine to engage the ABB IRB4600-60 6-axes industrial robot with a clay deposition end effector. This project focuses exclusively on clay deposition, firing, glazing and assembly logics. This highlights the need to develop designs within geometrical constraints that are tightly related to specific manufacturing processes – in this case, polyhedral space filling, fused polygons and ceramic firing and glazing. Operating through space filling polyhedral geometries enables a structural logic of assembly.

On the exposed faces of the pieces, different patterns are applied to create a micro relief through manipulation of printing tool paths. Through the introduction of deep learning, a recent and rapidly developing branch of artificial intelligence, AI generated textile patterns were identified and introduced for relief. These relief patterns runs counter to the precise geometric logic of the governing geometry and begin to provide alternate readings of the global assembly. Ultimately, the prototype transcends the familiar hard and solid materiality of ceramic bricks and move into an expressive realm of textile lightness.

Polyhedral Ceramic Rendering



Elevation Rendering



Polyhedral Ceramics Printed Textures and Pieces

DE-LAMINAS

Project Partners: Yang Meng and Kjo Zhuang
Professor: Alicia Nahmad and Patrick Danahy
Project: Mountain Ski Cabin

Fall 2023

The project harnesses the power of advanced machine learning techniques to revolutionize the way we visualize and render 3D models, specifically focusing on integrating natural textures and elements into architectural designs. The core objective is to seamlessly blend the precision of 3D modeling, as exemplified by Rhino 3D, with the artistic and generative capabilities of machine learning, creating highly detailed and aesthetically pleasing visual representations suitable for high-end ski cabin interiors.

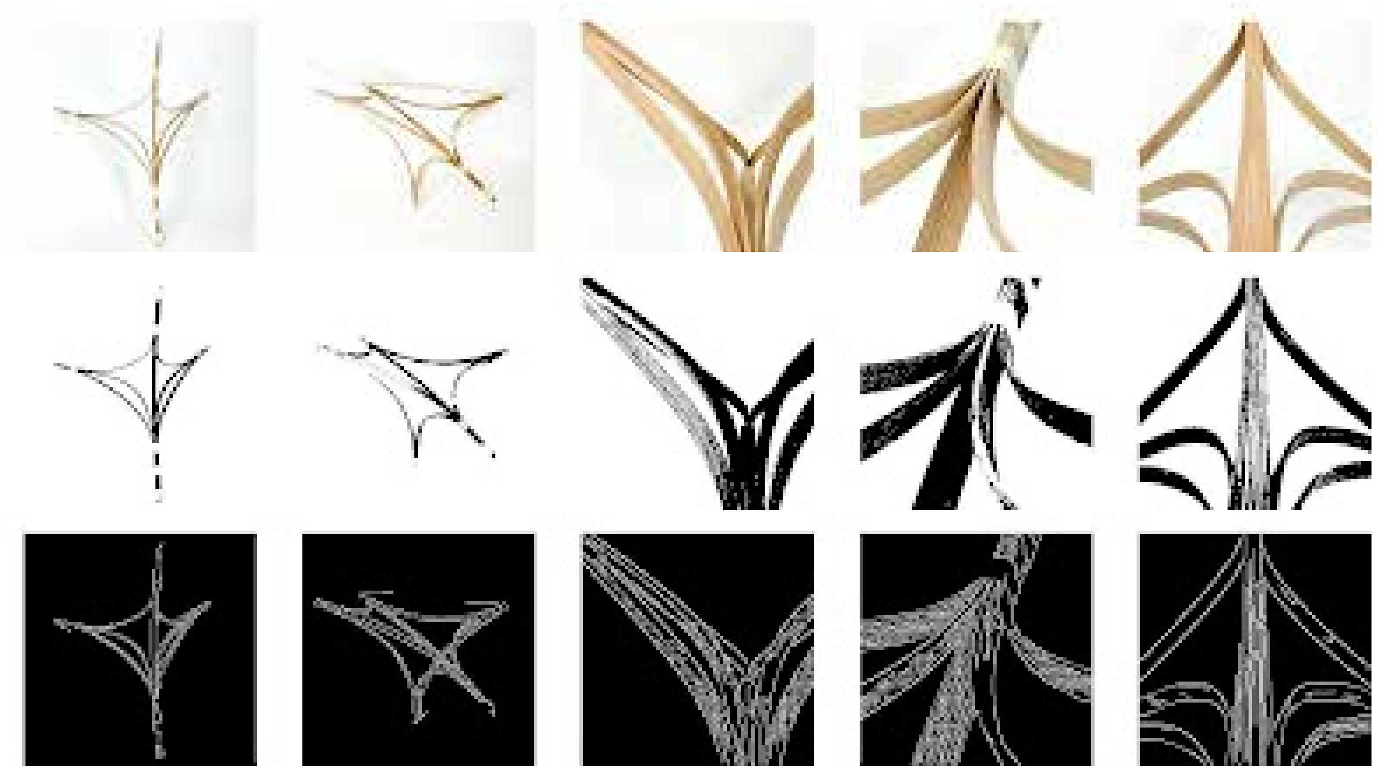
The first phase of the project involves processing the Rhino 3D model to identify and extract canny edges. This crucial step serves as the foundation for the subsequent texturing process by highlighting the model's intricate details and structural boundaries. To achieve this, we employ Stable Diffusion models trained specifically to recognize and interpret the complex geometries and edges within architectural 3D models.

With the model's form and features crisply defined, the project advances to generating and applying textures. This phase leverages a custom-developed Reinforcement Learning (RL) algorithm, designed to simulate and create high-resolution, realistic textures of natural elements, with an initial focus on wood textures. The RL model iteratively refines its texture generation process through a series of trials and adjustments, learning from each iteration to produce increasingly accurate and lifelike wood textures.

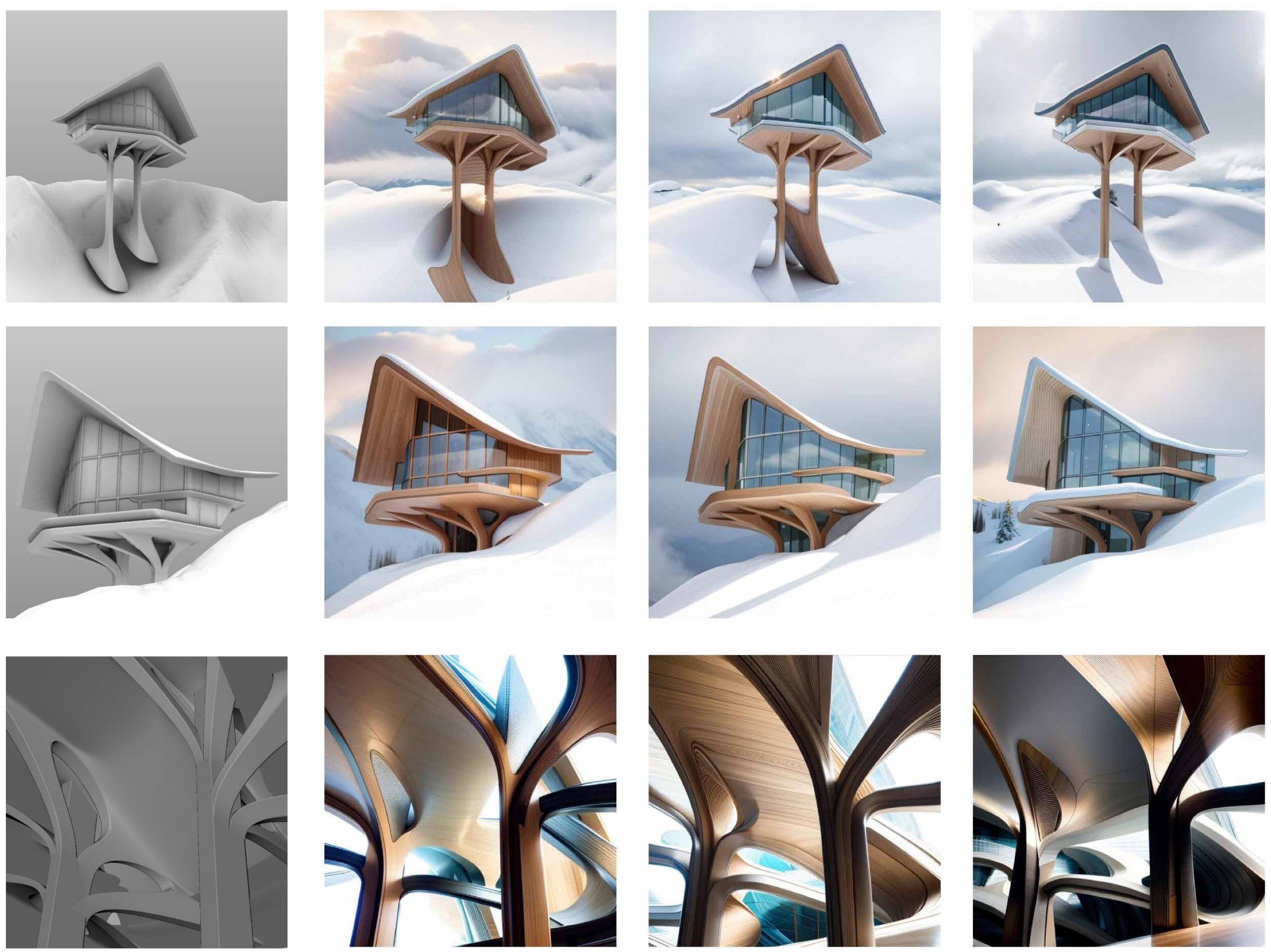
De-Laminas aims to redefine the standards of architectural visualization, offering architects and designers a powerful tool to create more immersive, detailed, and contextually integrated representations of their designs. By combining the precision of Rhino 3D with cutting-edge machine learning techniques, the project opens new avenues for creative expression and functional design in architecture and interior design, particularly in settings that benefit from a strong connection to natural elements and textures.

Bent Wood Initial Concept

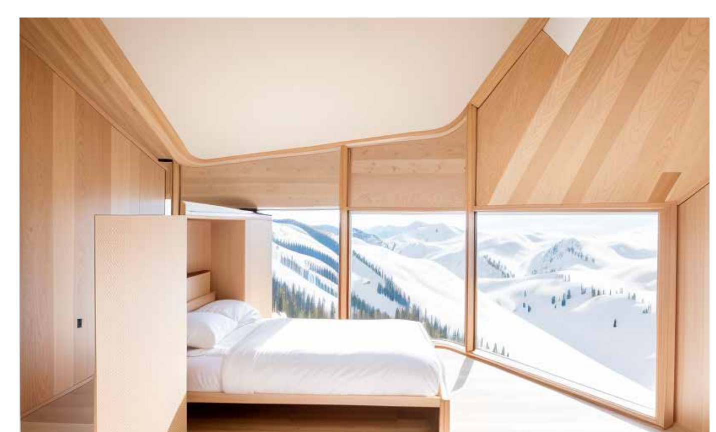
Image Processing with Open Computer Vision



Stable Diffusion Exterior Renders - From Model to Outputs



Stable Diffusion Generated Images



THE RARE MYTH

Project Partners: Yu Qian (Tommy) Wang
Professor: Britt Eversole, Julie Larse, and Sinead MacNamara
Project: Thesis Design Project

Spring 2020

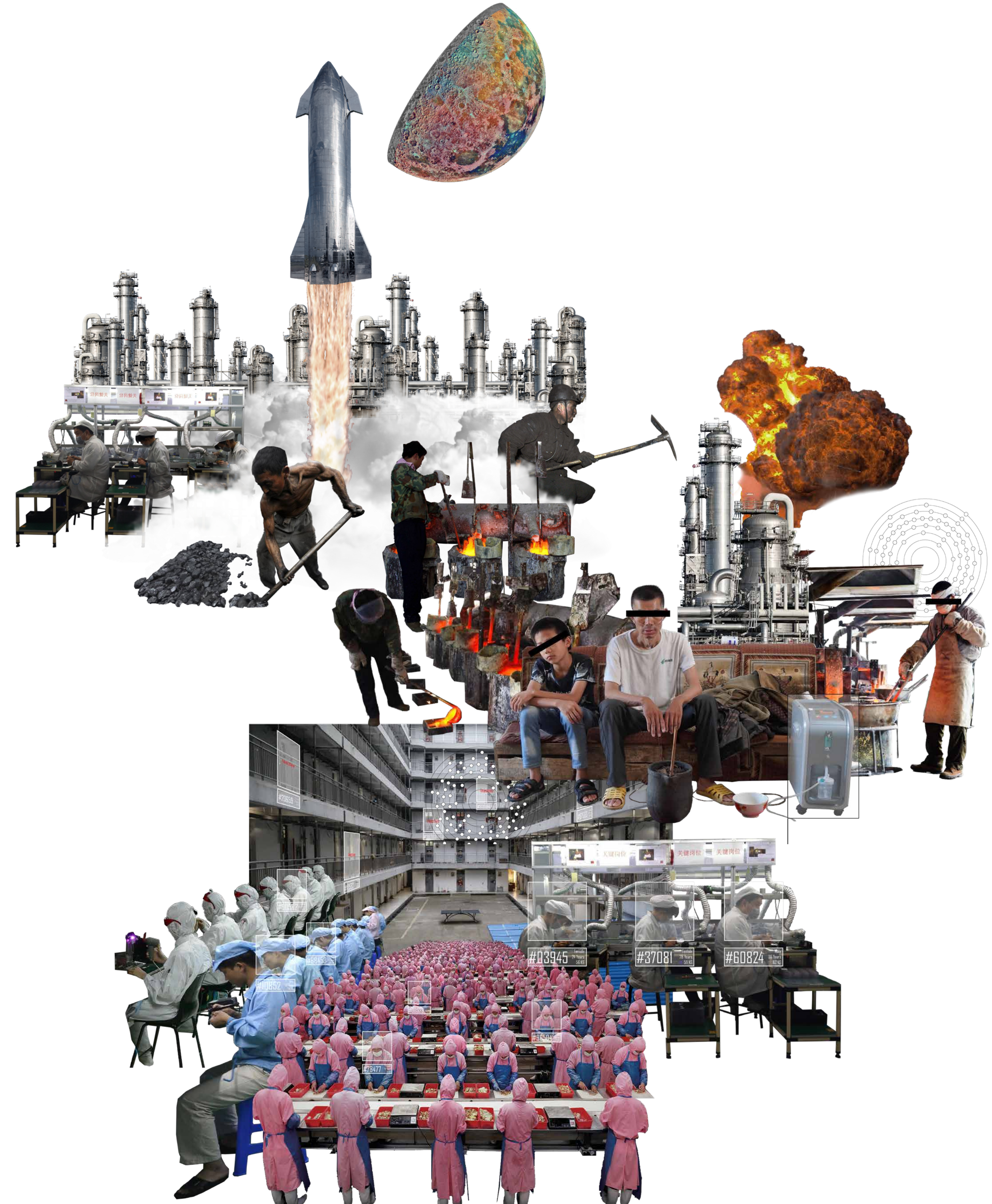
This thesis project analyzes the anthropogenic process of rare earth mining as a phenomenon of exploitation to speculate on future design scenarios. These drawings map the manifestation of rare earth mining on today's political, economical, social, and environmental realities.

China has been the leader in the rare earth mining industry, controlling more than eighty-percent of the rare earths traded and holds around a third of the global reserves. Rare Earths are rare because of being scarce, dispersed, technically, and economically difficult to extract. However, the economic difficulty lies also within the complex network encompassed from the extraction to the consumption of this metals.

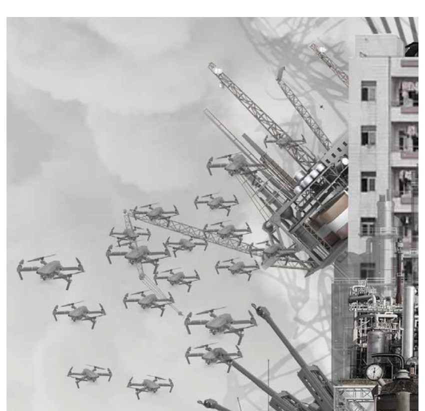
The "rare" in the title addresses the rare earth metals and the rapidly exploding scale of their extraction. The "myth" alludes to those processes as speculative narratives of technological environments.

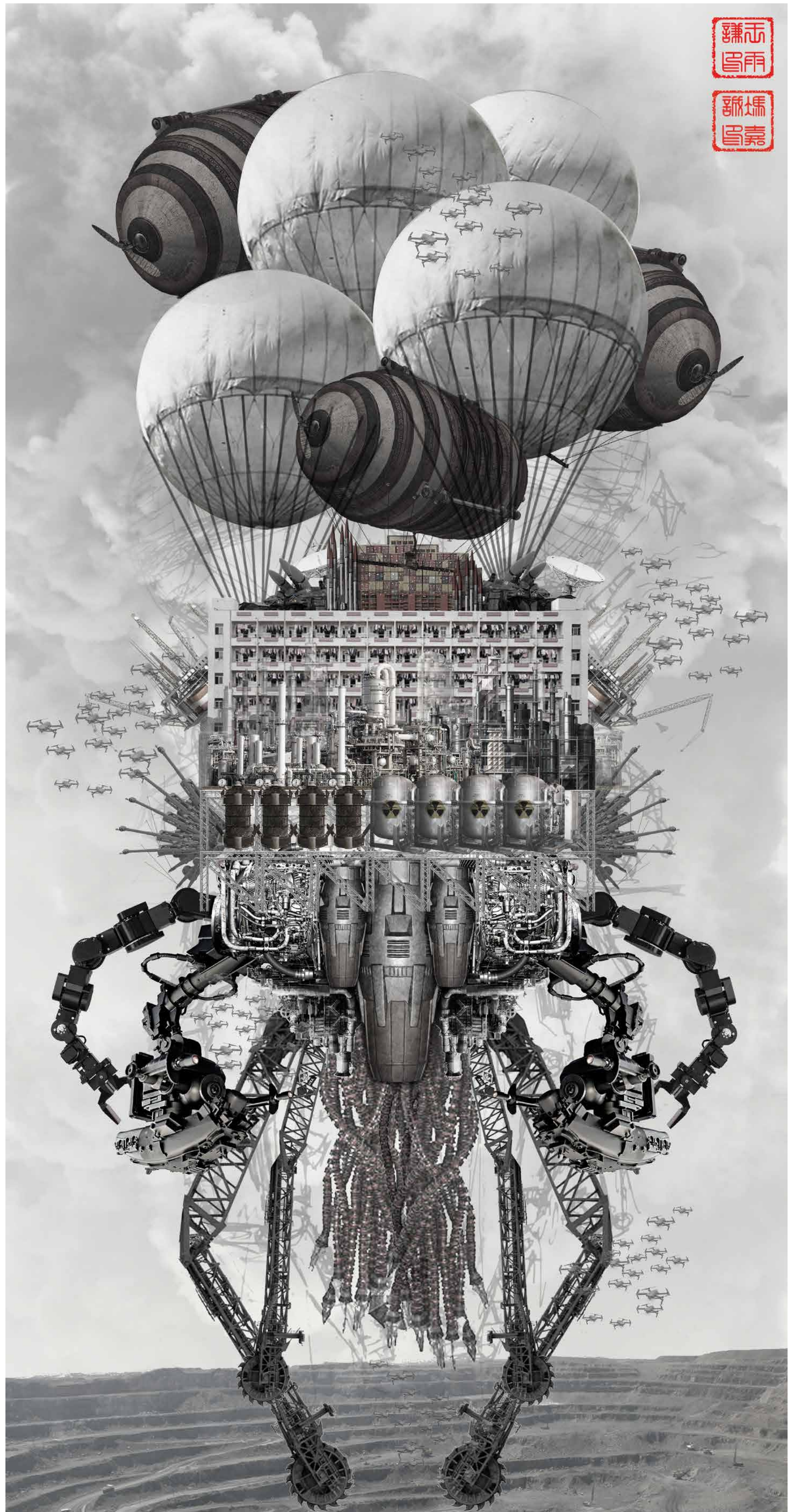
Climate change may be hard to grasp because it's geo-graphic representation is overly abstracted and hard to understand. The Rare Myth's contention lays that if these processes can't be understood in their scale, pervasiveness, and duration, then it is through methods of representation that they can be made legible to the senses.

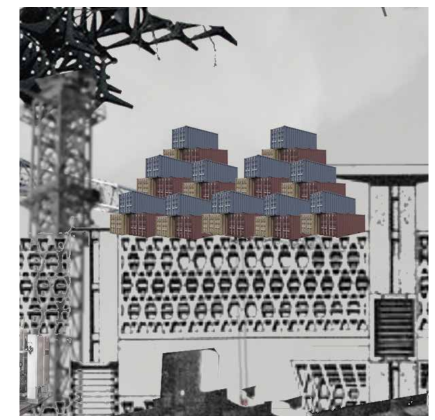
The intention of this thesis is not to merely speak of rare earth metals as a specific commodity. However, it is an attempt to overlay and map synthetic geographies left from its demands and consumption, and to articulate the culmination of its rapacious trajectory.

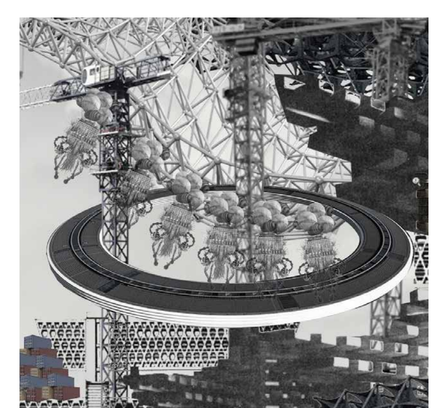


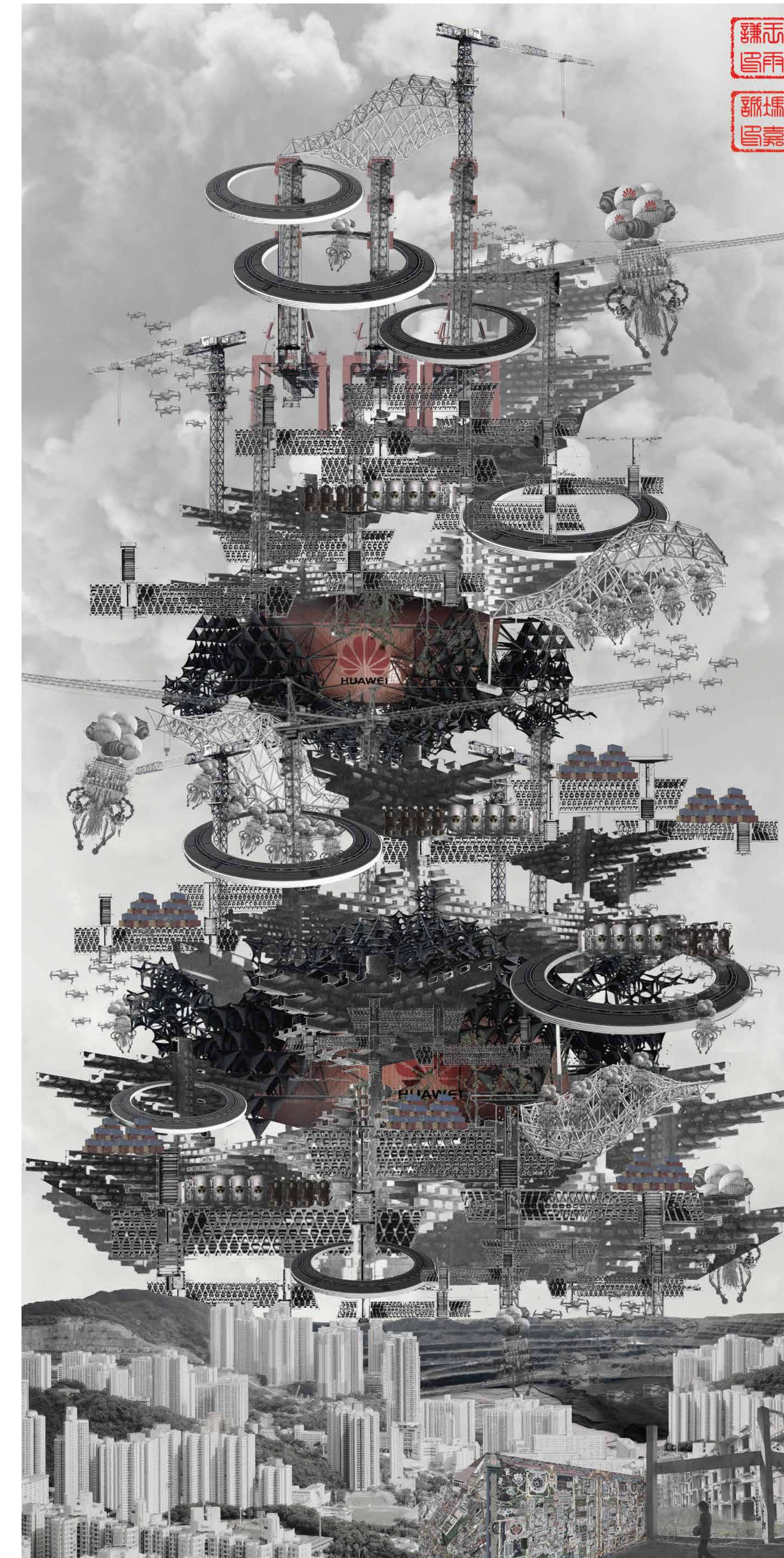
Detail Section





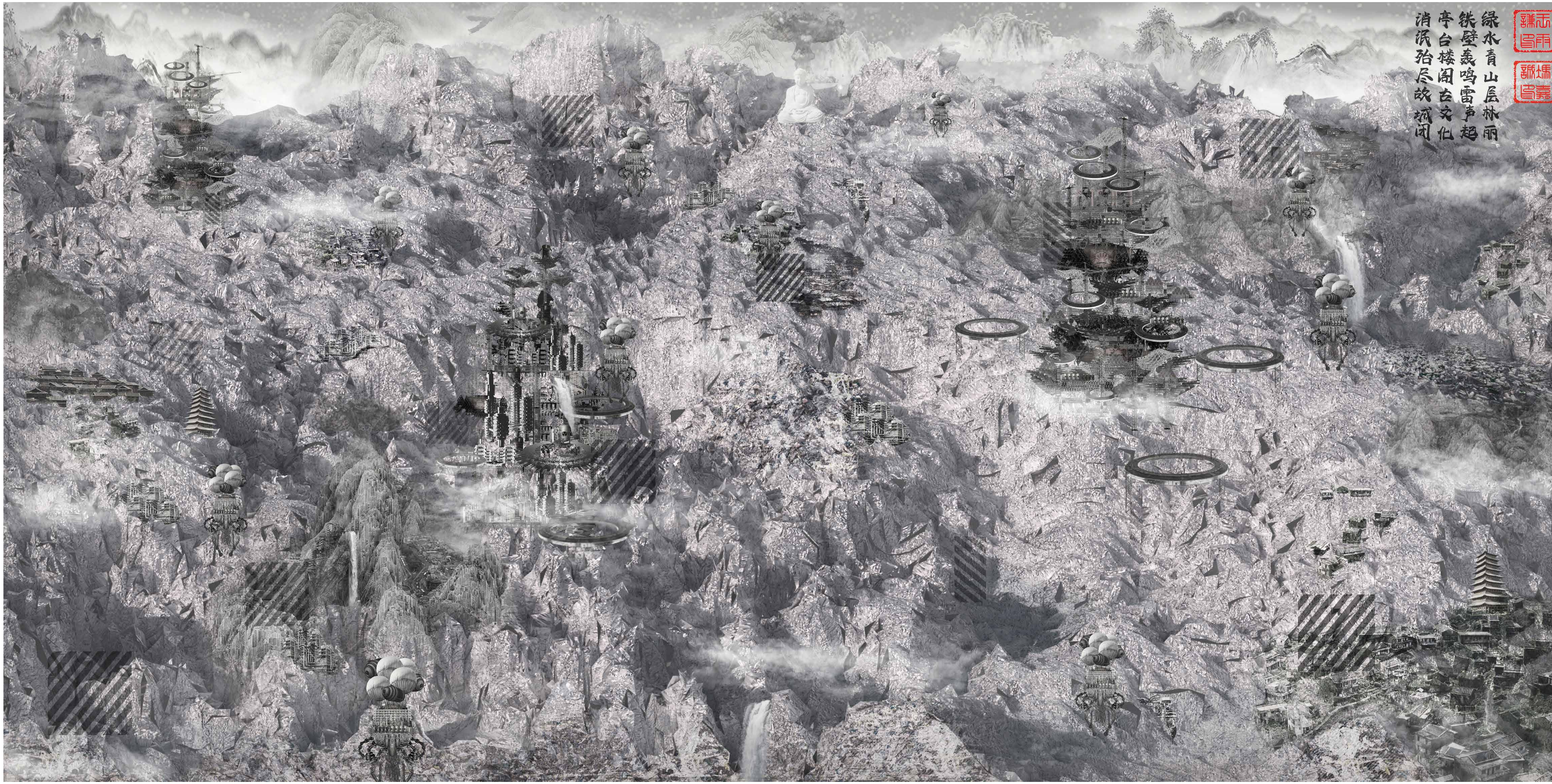






Perspectives

Heaven created mountains of bodily spirits and rivers of flowing vines,
We as children, exploit gifts with boundless greed,
When comes reincarnation of emptied mountains and derived rivers?
Hollow seasons soaring past long we pray for the Ark.



"Heaven created mountains of bodily spirits and rivers of flowing vines,
We as children, exploit his gifts with boundless greed,
When comes reincarnation of emptied mountains and derived rivers?
Hollow seasons soaring past long we pray for the ark."

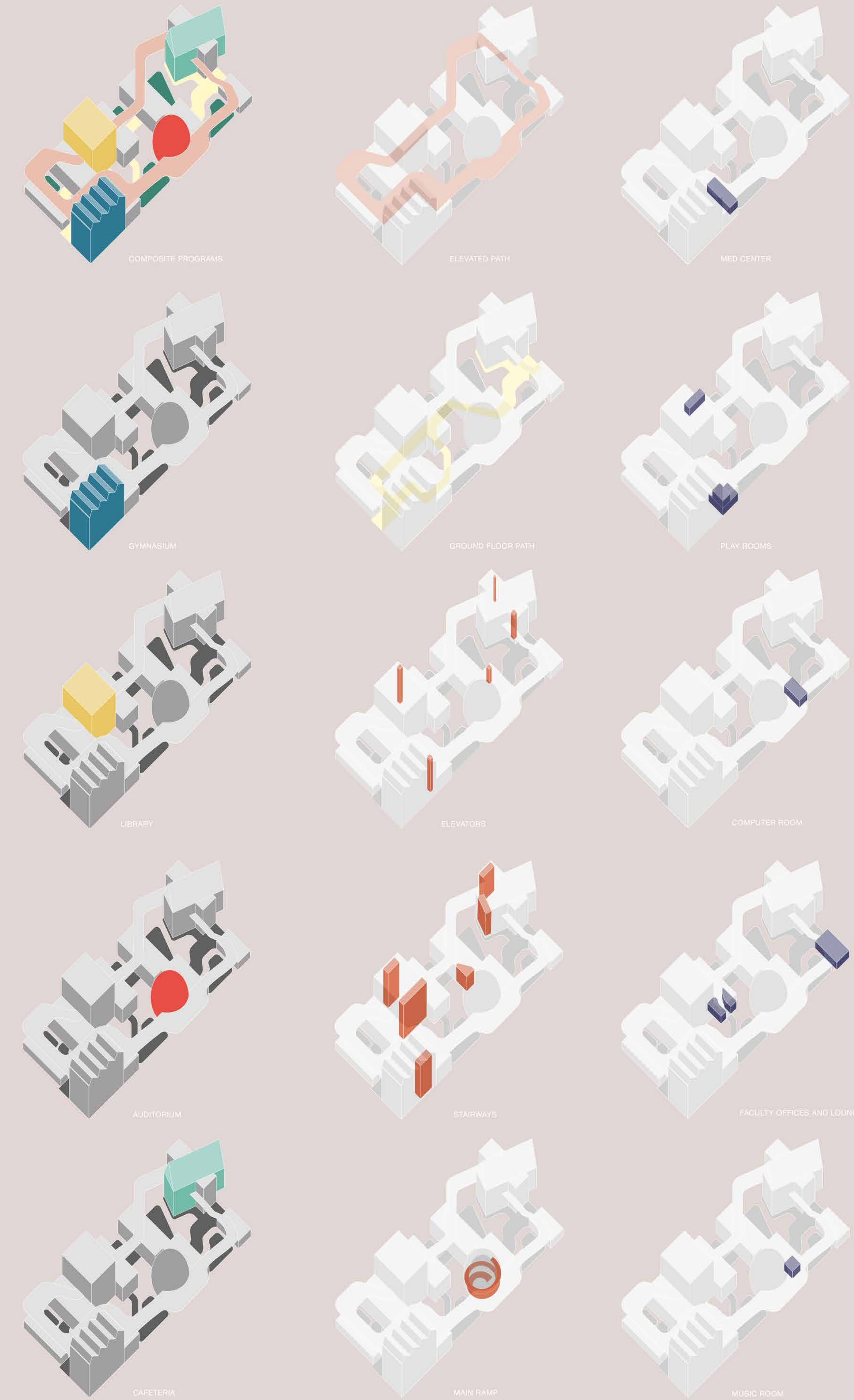
RE-GENERATION

Location: Xiong’An, Hebei, China
Project Partners: Karisma Dev and Anna Korneeva
Professor: Fei Wang
Project: Kindergarten-Senior Center

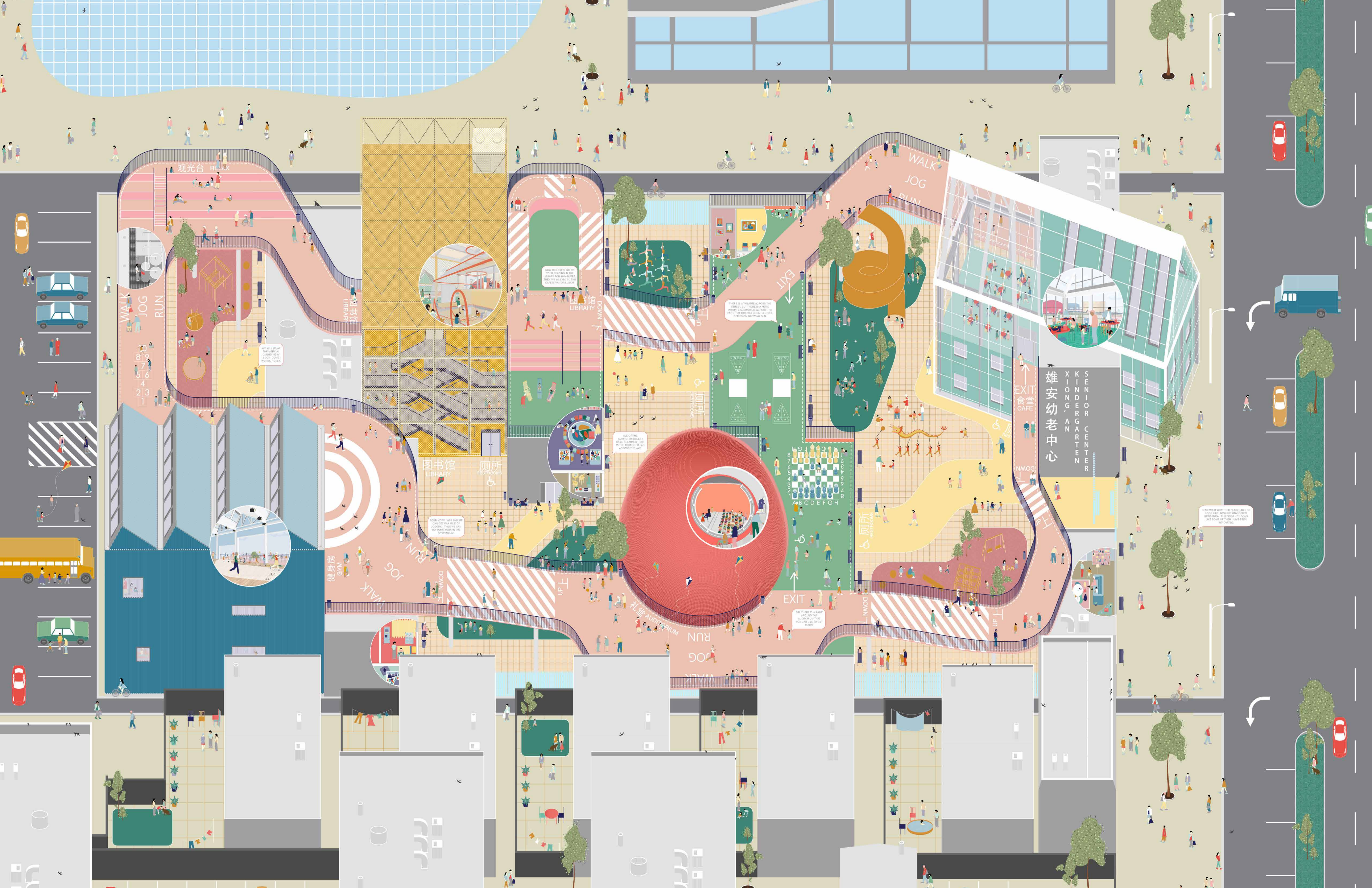
Spring 2019

Located in Xiong’An, China, this kindergarten-senior center strives to enhance the interactions between these two age groups in a way that exemplifies the behaviors and needs of each. This project is formally divided into three sections - the existing structures (previously housing units) that dictate ‘courtyard formations’ on the ground plane; the top path that serves as a playground and vast open space for kindergarteners and seniors alike to be free in a safe, elevated environment in which they cannot get lost; and the objects that interject themselves with the existing infrastructure and the path. Thus, interaction is promoted between the two primary age groups and methods of connection are prevalent on a variety of scales.

The program is rooted in need-based conditions of its surroundings. With Xiong-An operating as a new city with decreasing levels of childbirth and overall population levels and the price of education increasing each year, this center focuses on the functionality of an all-inclusive learning environment. By occupying the use of a range of senses (materiality, colors, format of programs), children and seniors alike can feel safe in a fun and playful learning environment.

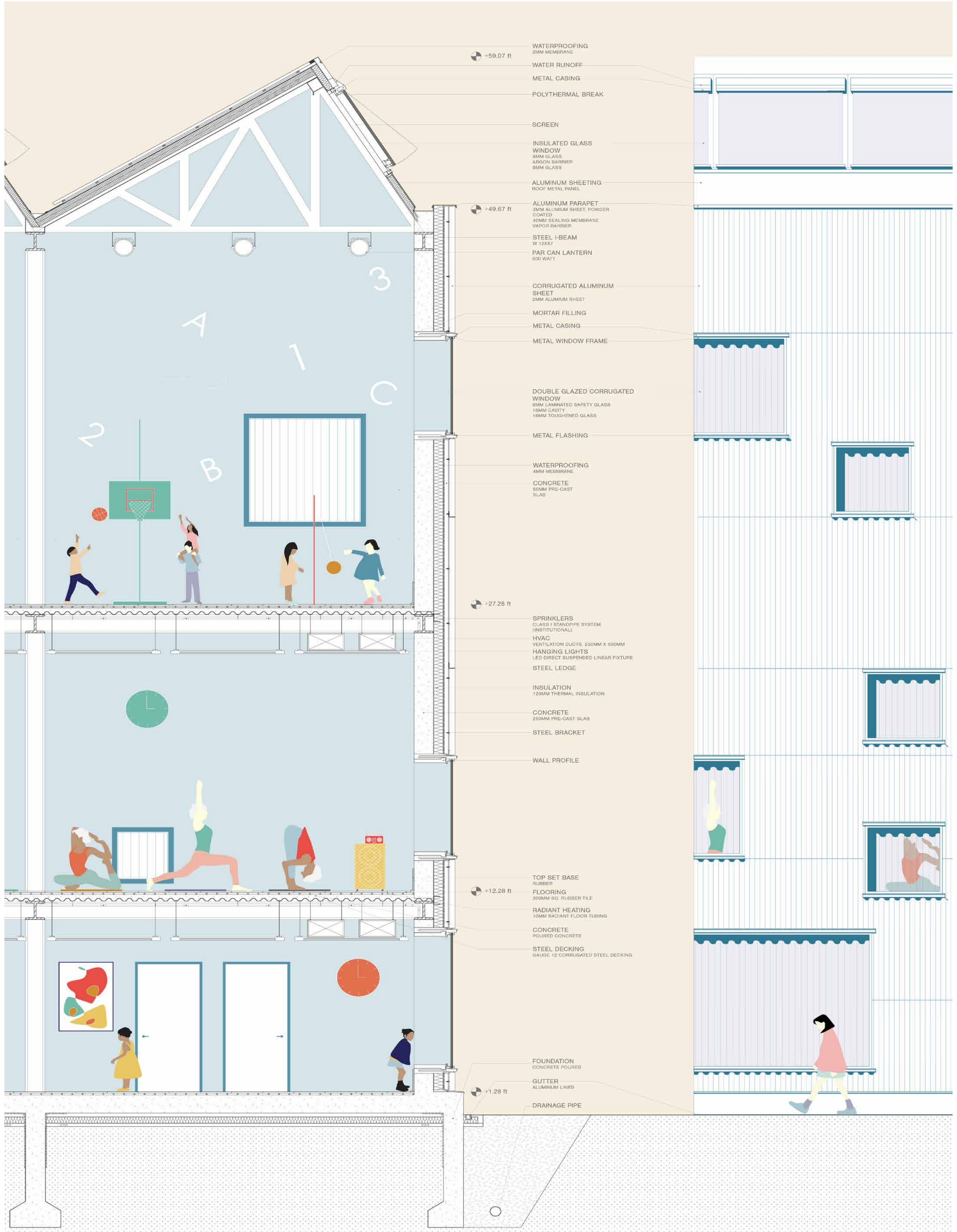


Program analysis



观光台 RELAX
WALK
JOG
RUN
图书馆
LIBRARY
厕所
RESTROOMS
健身房
GYM
礼堂 AUDITORIUM
EXIT
食堂
CAFE
雄安幼老中心
XIONG'AN KINDERGARTEN SENIOR CENTER
DOWN
UP

Detail Section

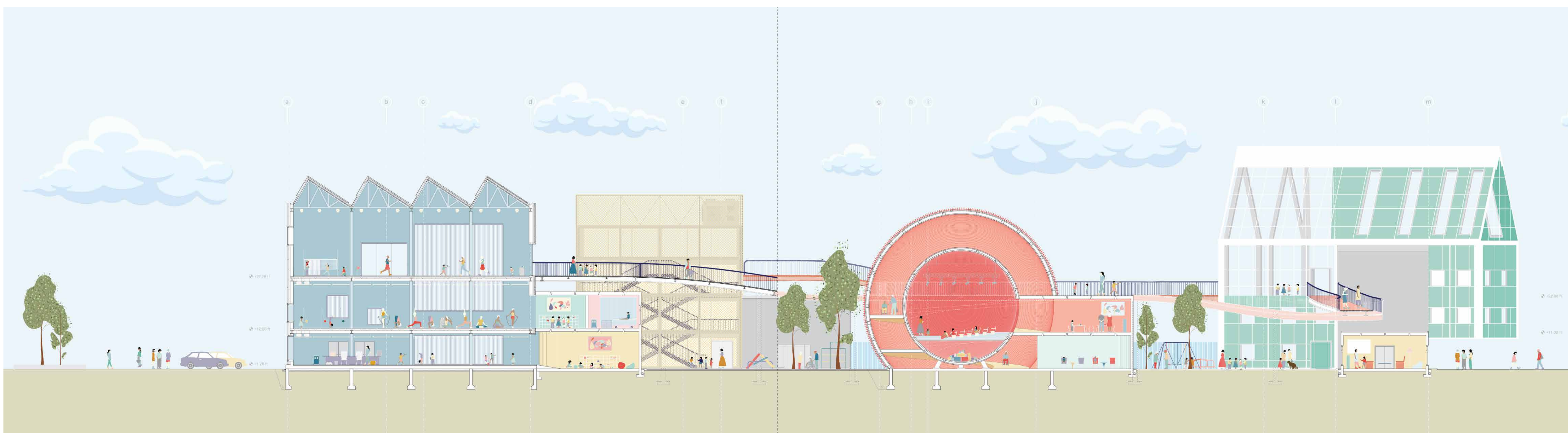


Perspectives

Longitudinal Section East

Library and Cafeteria

Longitudinal Section West



Gym and Auditorium

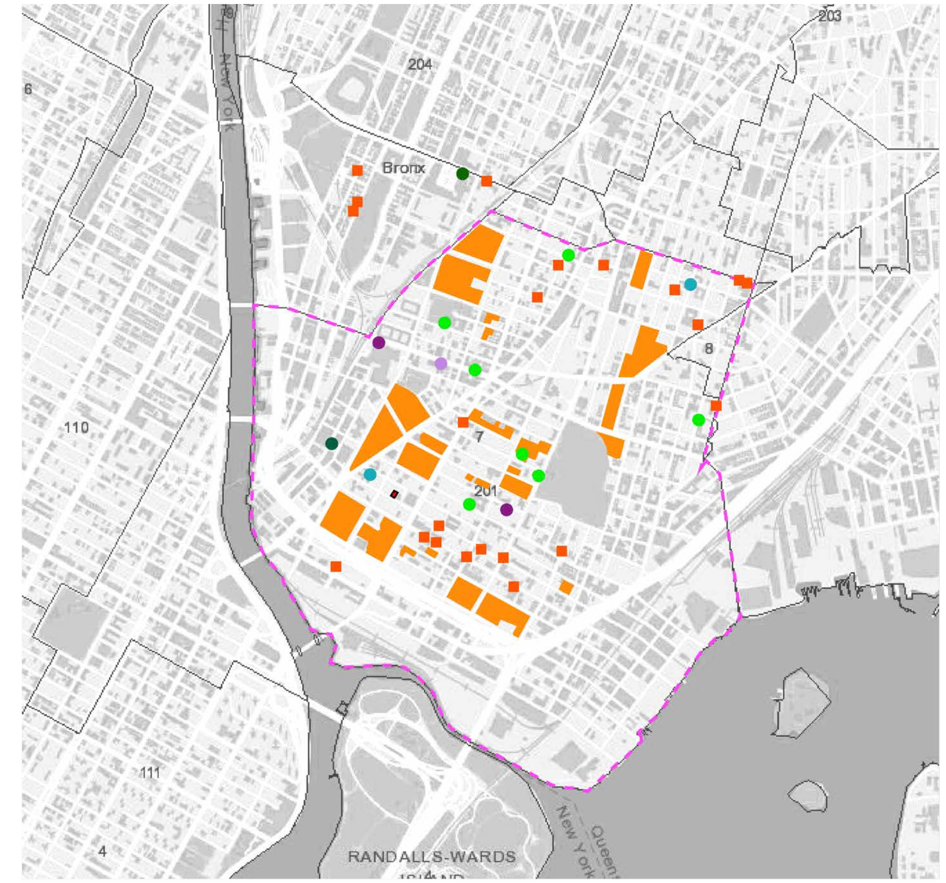
A FRAME TO CONNECT

Location: Bronx, NY
Project Partners: Umut C. Guney And Tirta P. Teguh
Professor: Angie Co And Julie Hoskowitz
Project: Affordable Housing and Start-Up Incubator

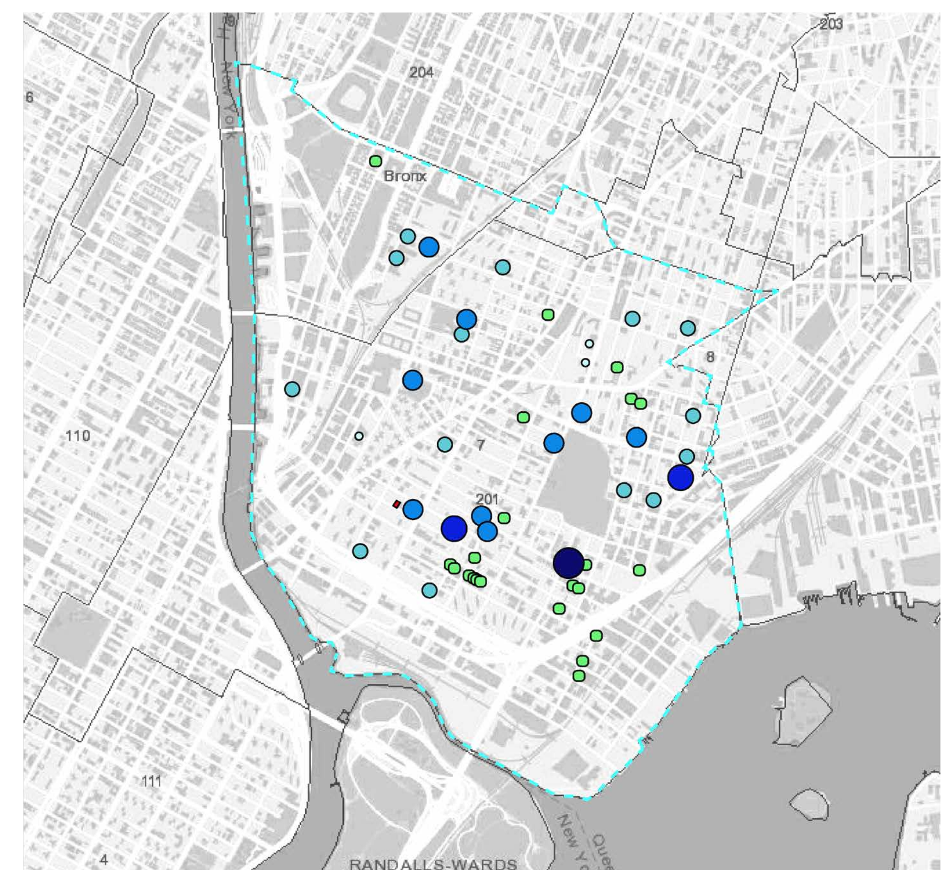
Located in Mott Haven, in Bronx, New York City, the project looked to find an alternative to the issue of affordability in the Bronx. As the project was lead by utilizing community land trusts, the project also focused on the development of the neighborhood as well.

The project consists on 26 affordable residential units and 7700 square-foot community-use space, sub-leased by the community land trust, south bronx unite. The project budget is $11 million, which makes it affordable for a clt to push forward. The project is expected to produced a levered internal rate of return is 2.08% and levered equity multiple of 1.10.

Located in a R-6 zone for residential, the site has a maximum far of 2.20. However, due to its affordable nature, we were able to include an additional 10% to the far making it 2.42.

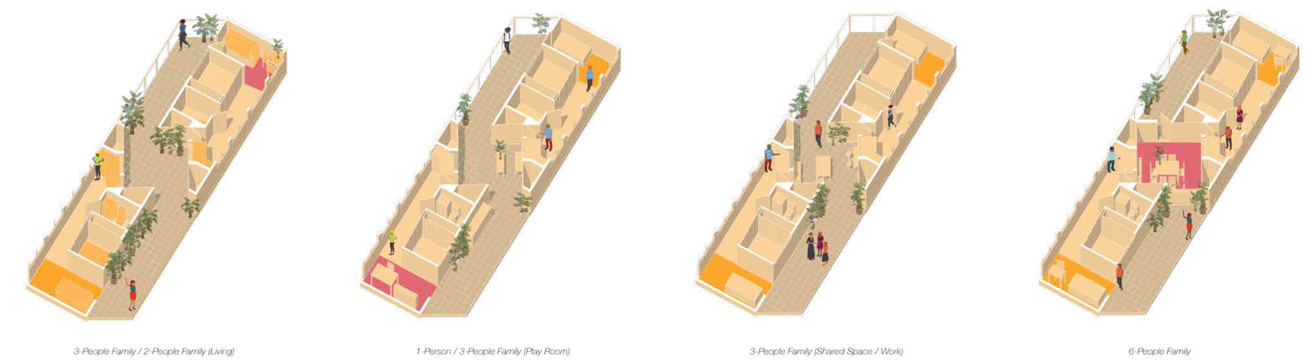


South Bronx Social Housing Distribution



South Bronx Student Homelessness Percentage

Start-Up Incubator Plan



Growth Speculative Diagram

Residential Unit Plan

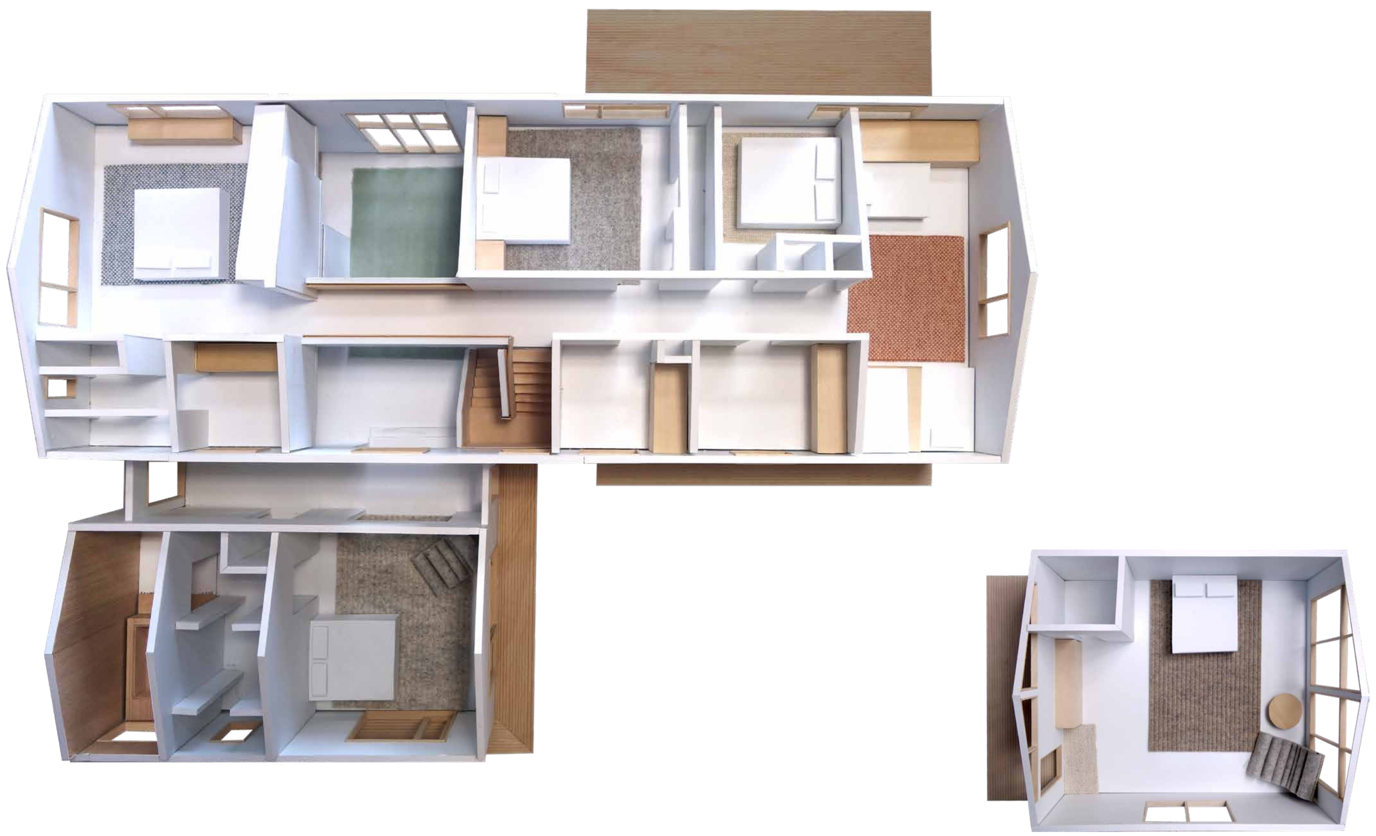
A Frame to Connect

Collage Perspective and Model Perspective


2C

vonDALWIG Architecture

Location: Brooklyn, NY
Skills: Rhino 3D, AutoCAD, Adobe Creative Suite, Physical modeling.
Project Phases: Schematic Design and Design Development



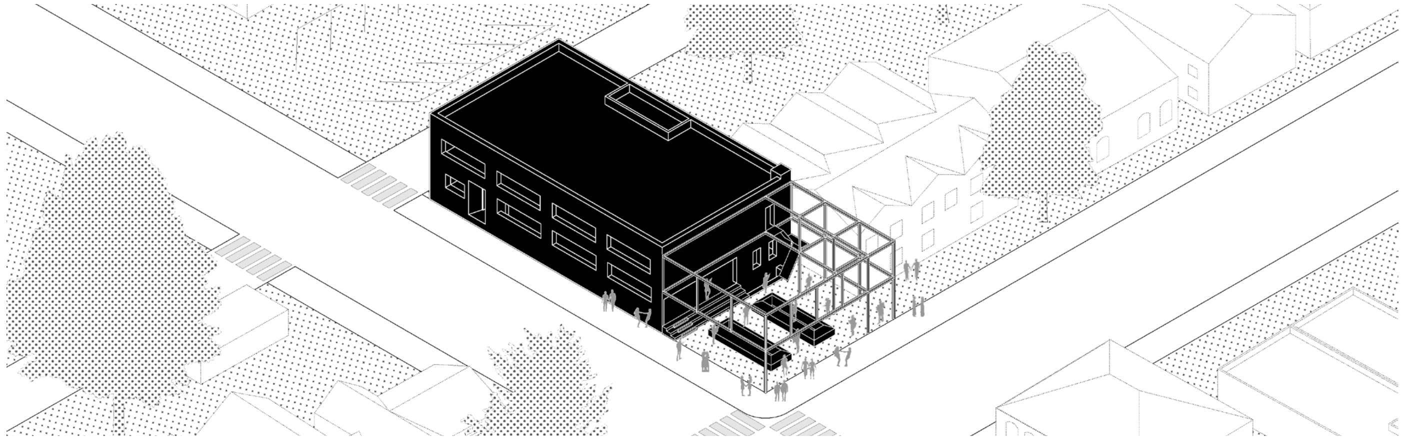
House in Bedford Physical Model

House in Brooklyn Schematic Plans

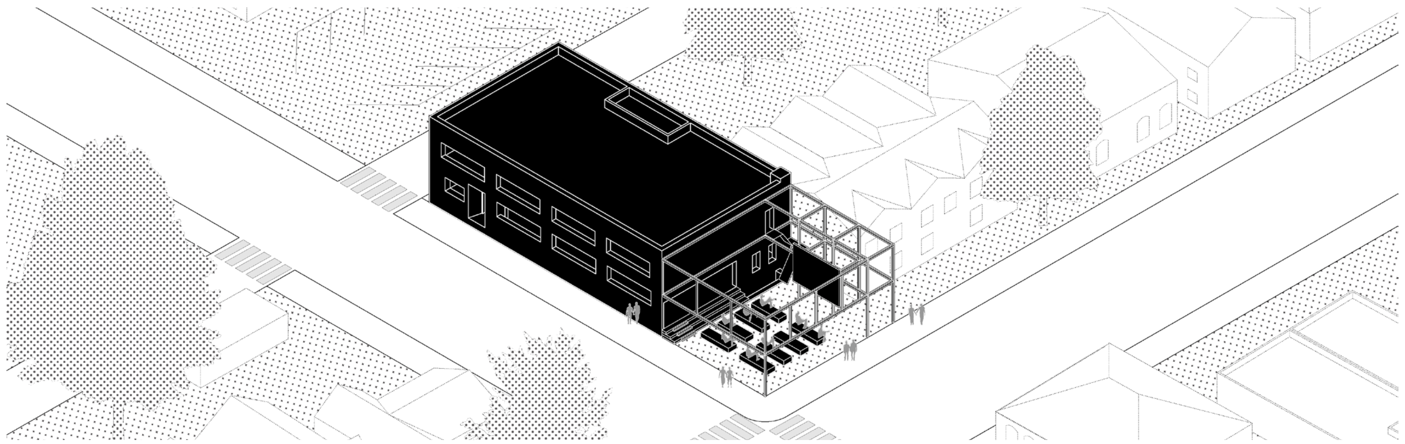
House in Bedford Model Perspecives: Kitchen and Bath

House inManhattan in Manhattan Rendering: Kitchen

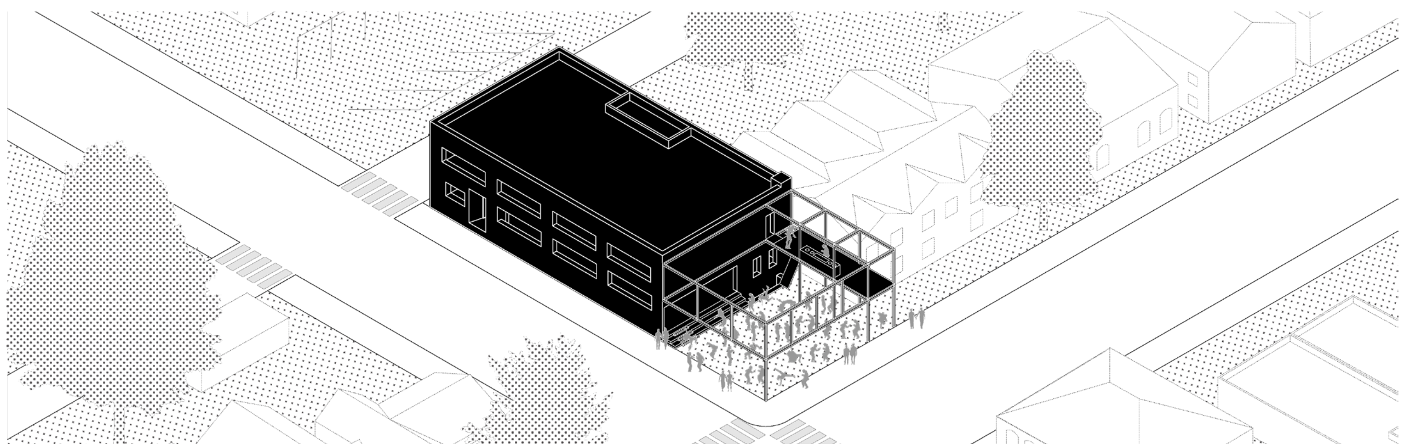
House inManhattan in Manhattan Rendering: Hallway



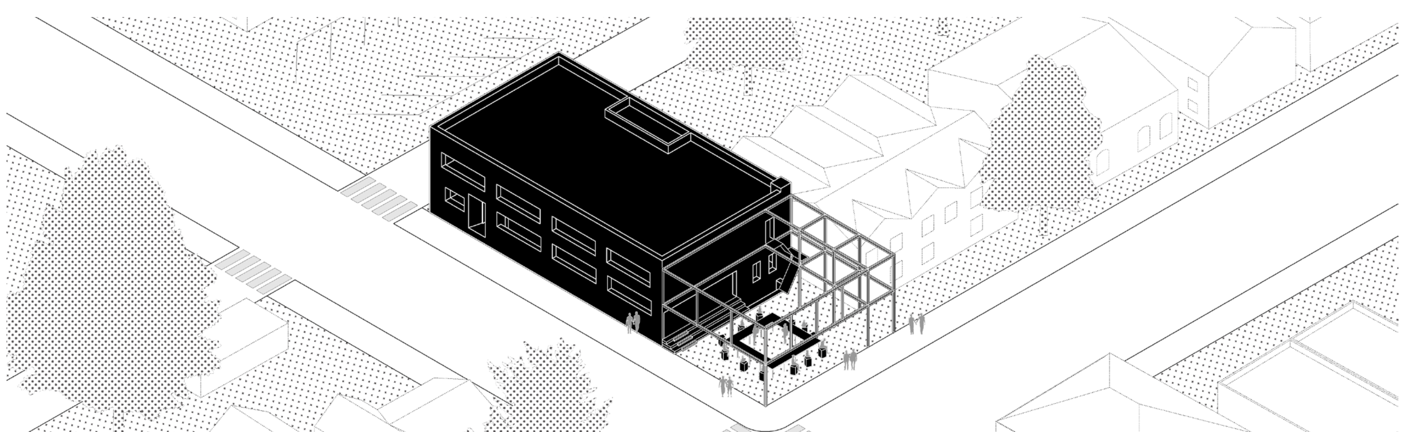
Hudson Competition: Farmers Market



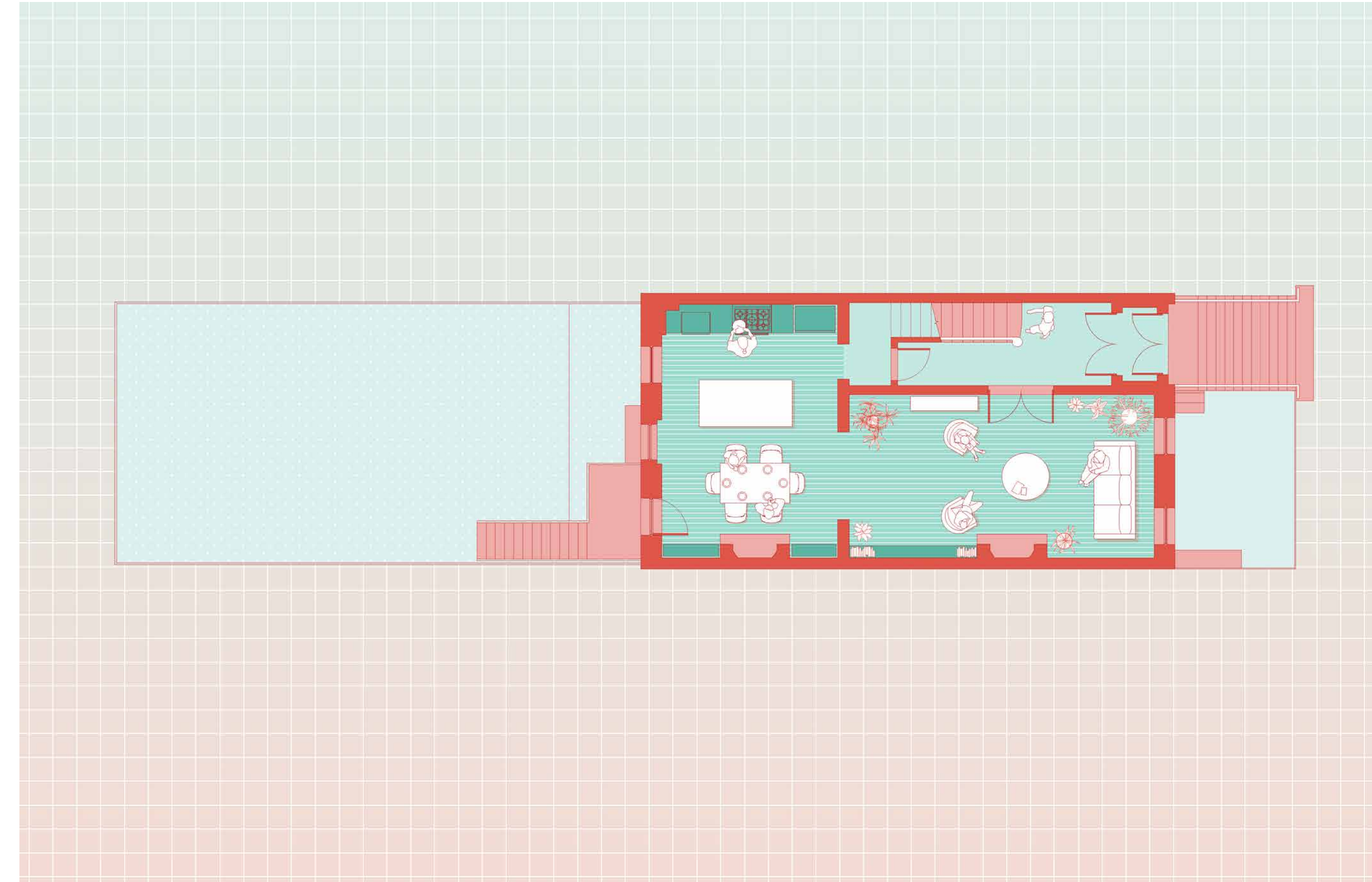
Hudson Competition: Street Cinema



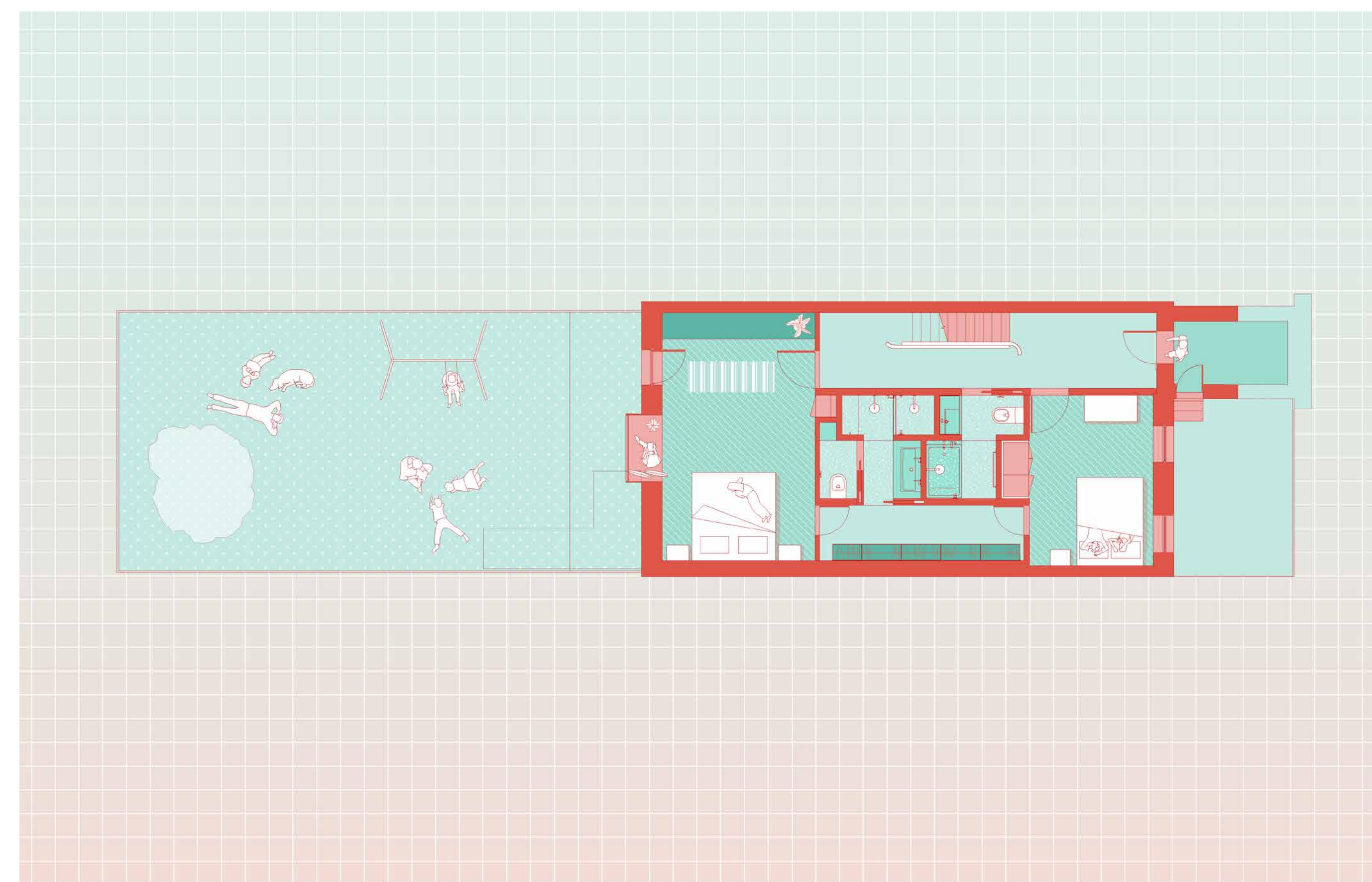
Hudson Competition: Dance Party!



Hudson Competition: Workshop



Townhouse in Brooklyn Promotional Drawing Second Floor



Townhouse in Brooklyn Promotional Drawing Ground Floor

PROFESSIONAL WORK

Firm: JCBT Architect
Location: Boston, MA
Project Phases: Schematic Design, Design Development, and Construction Documents

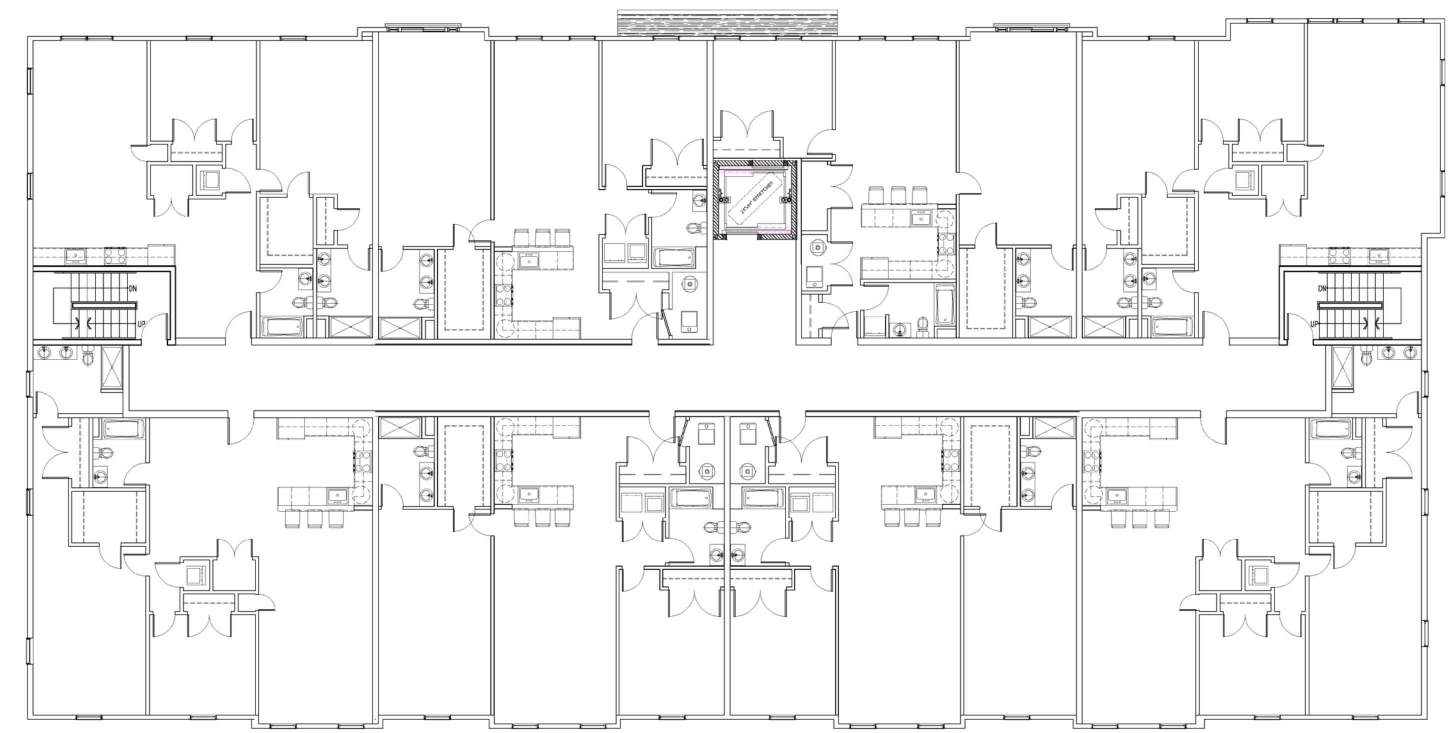
Elevation Details

1 ENLARGED PARTIAL ELEVATION @ BUMP-OUT

2 ENLARGED PARTIAL ELEVATION @ MAIN ENTRANCE

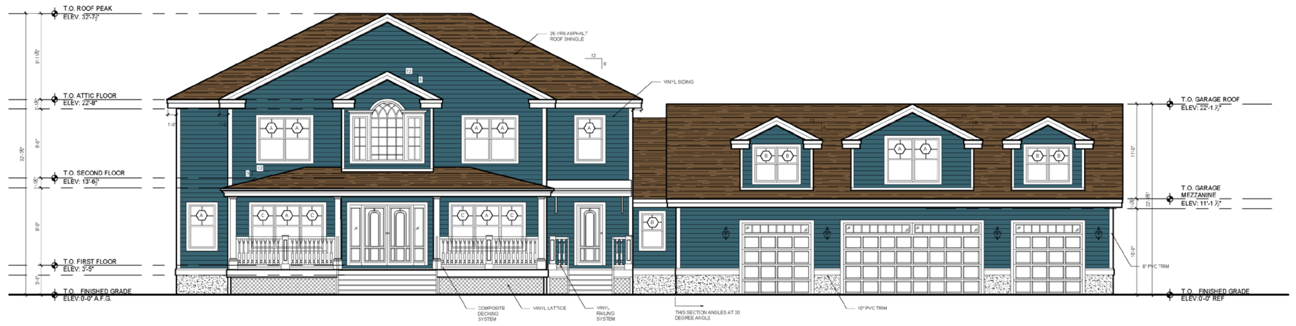
3 ENLARGED PARTIAL ELEVATION @ TOWER

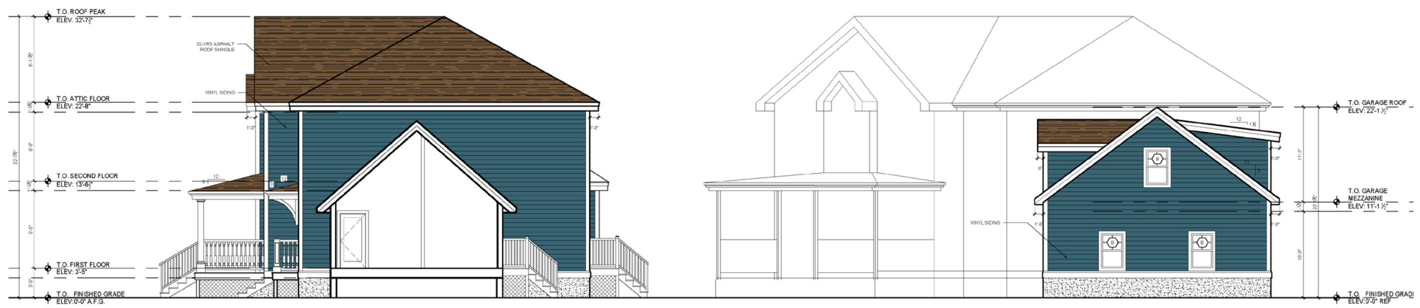
Multi-Unit Mixed-Use Development in Quincy: Plans and Elevations

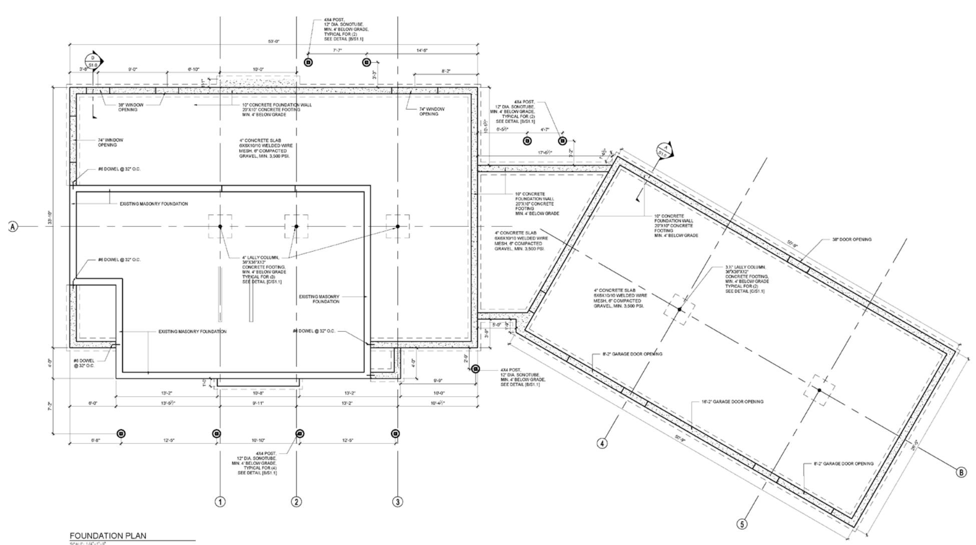


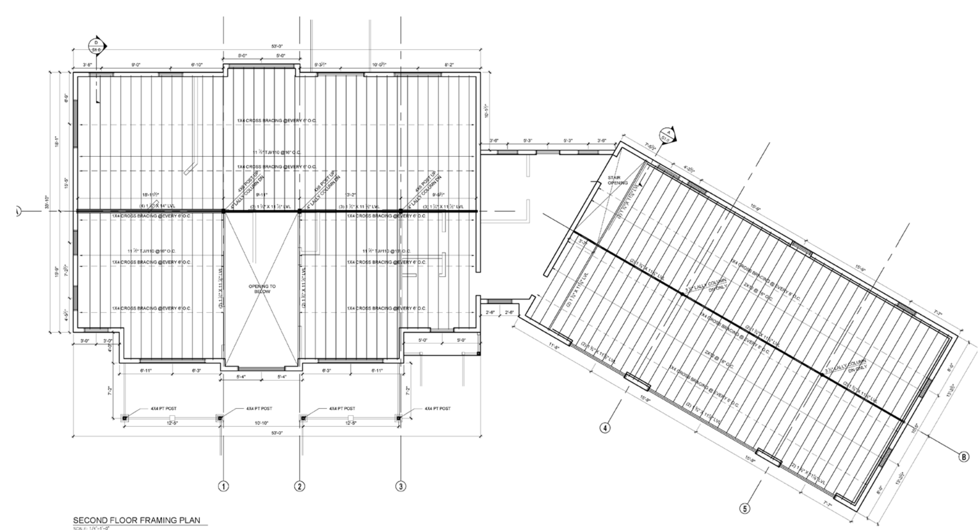
1 PROPOSED SECOND FLOOR PLAN
SCALE: 3/16" = 1'-0"

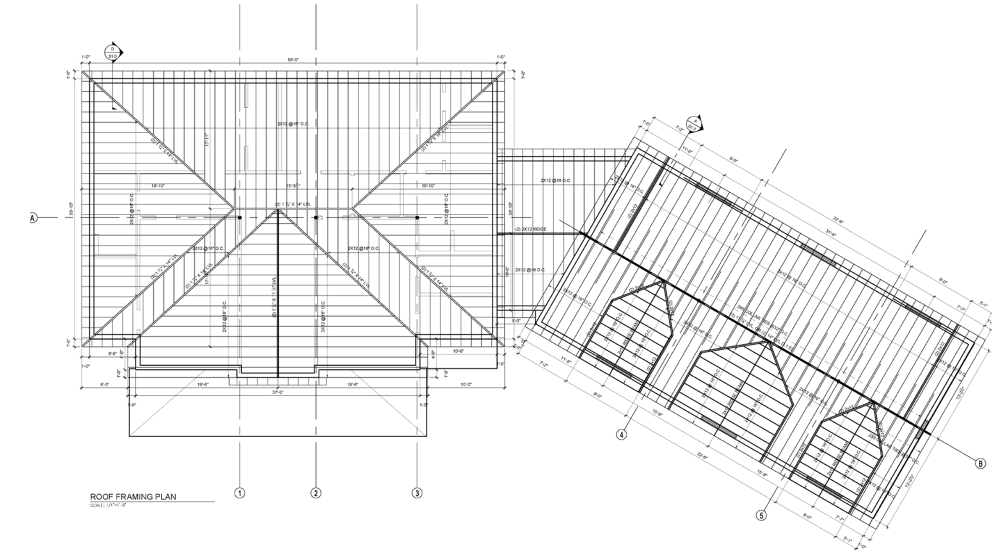
Ground-Up Construction in Bedford, MA

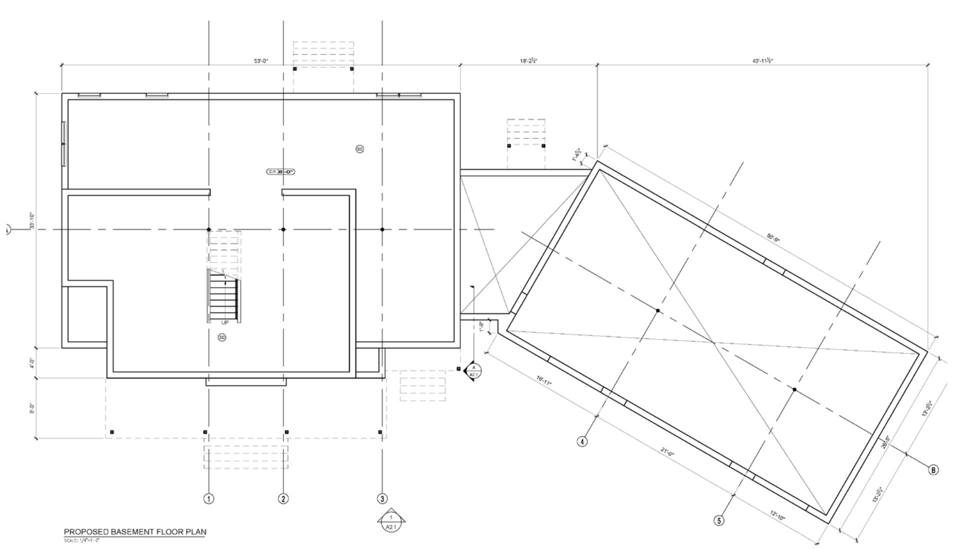


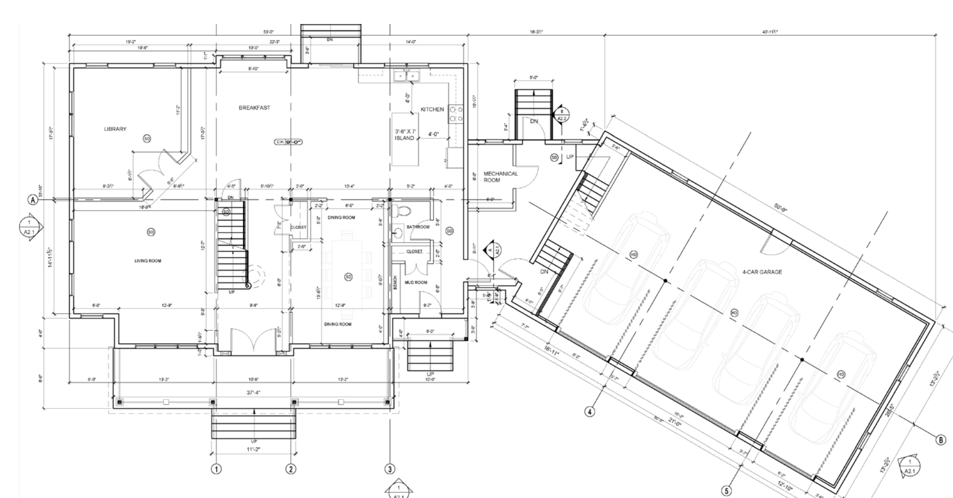


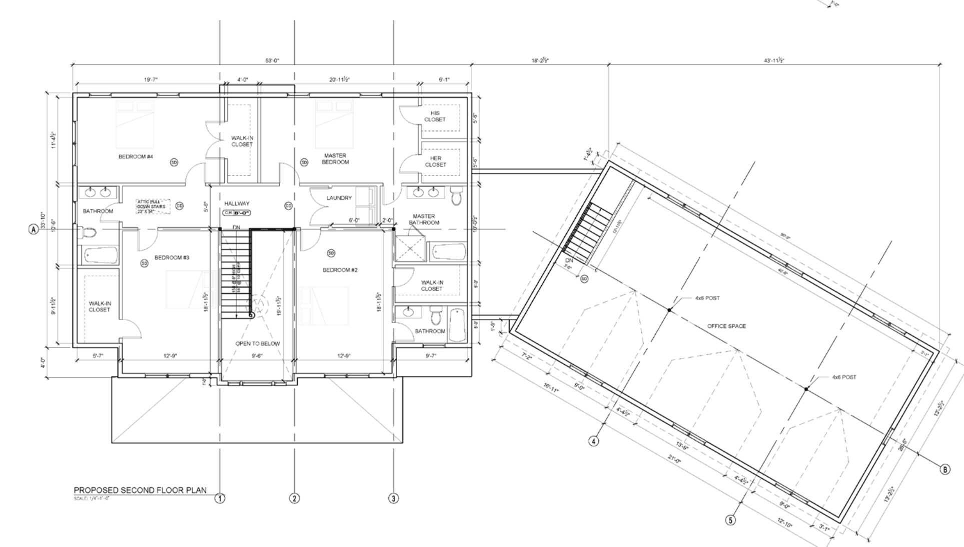






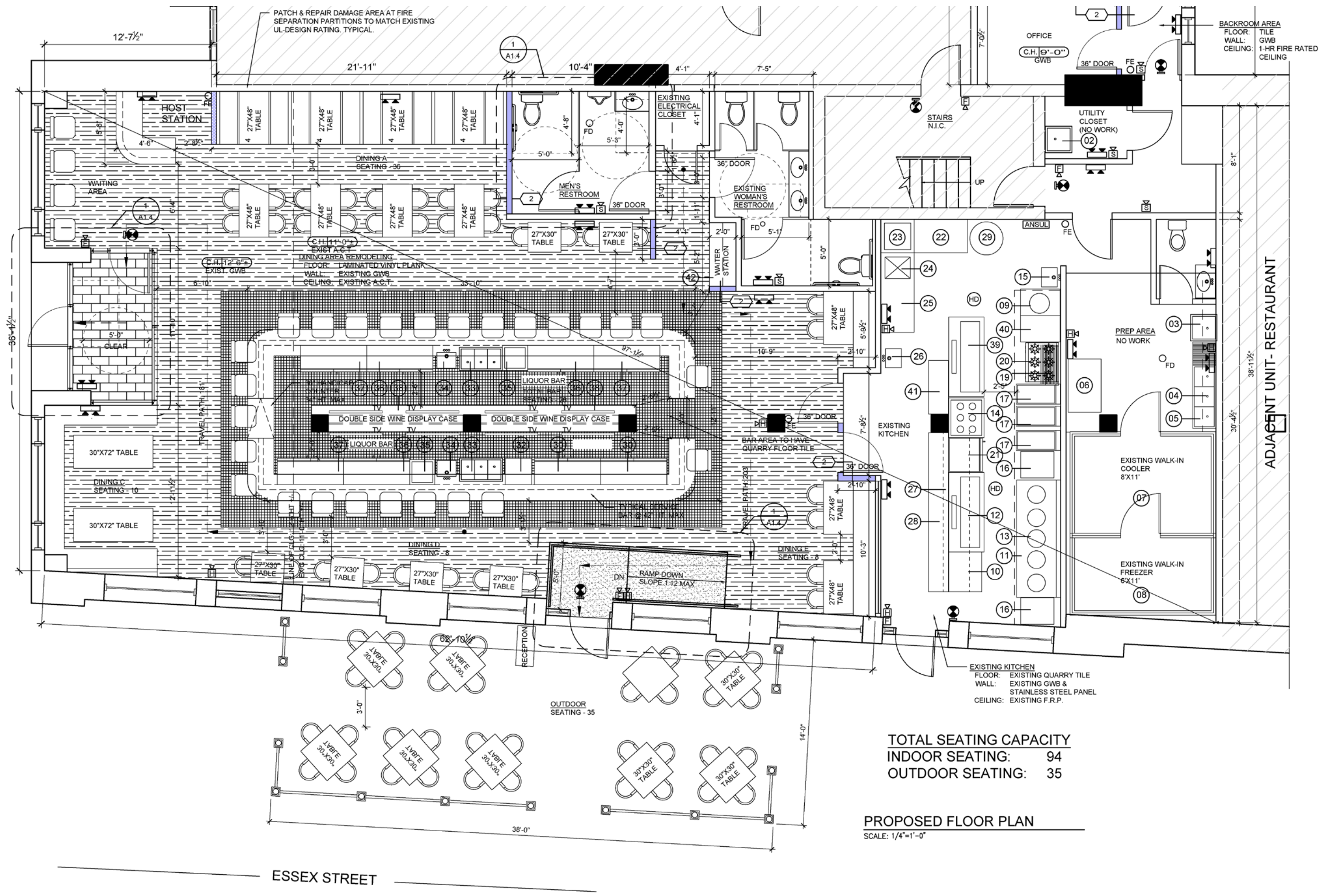




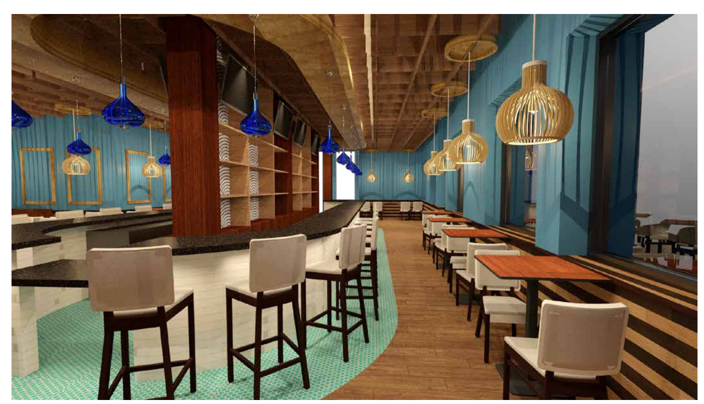


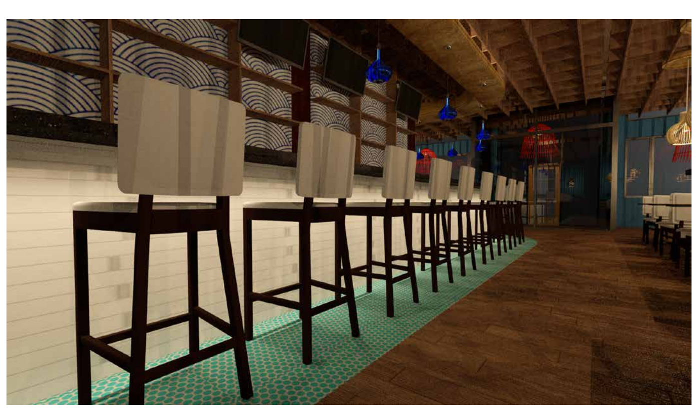
Elevations, Architectural Plans, and Structural Plans

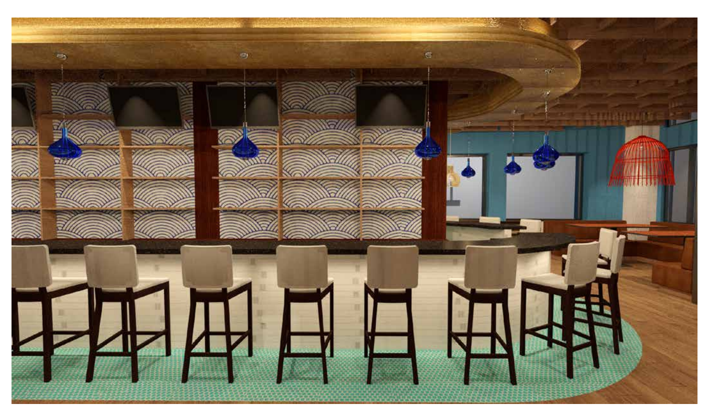
Plan with Floor Finishes for Restaurant in Salem, MA

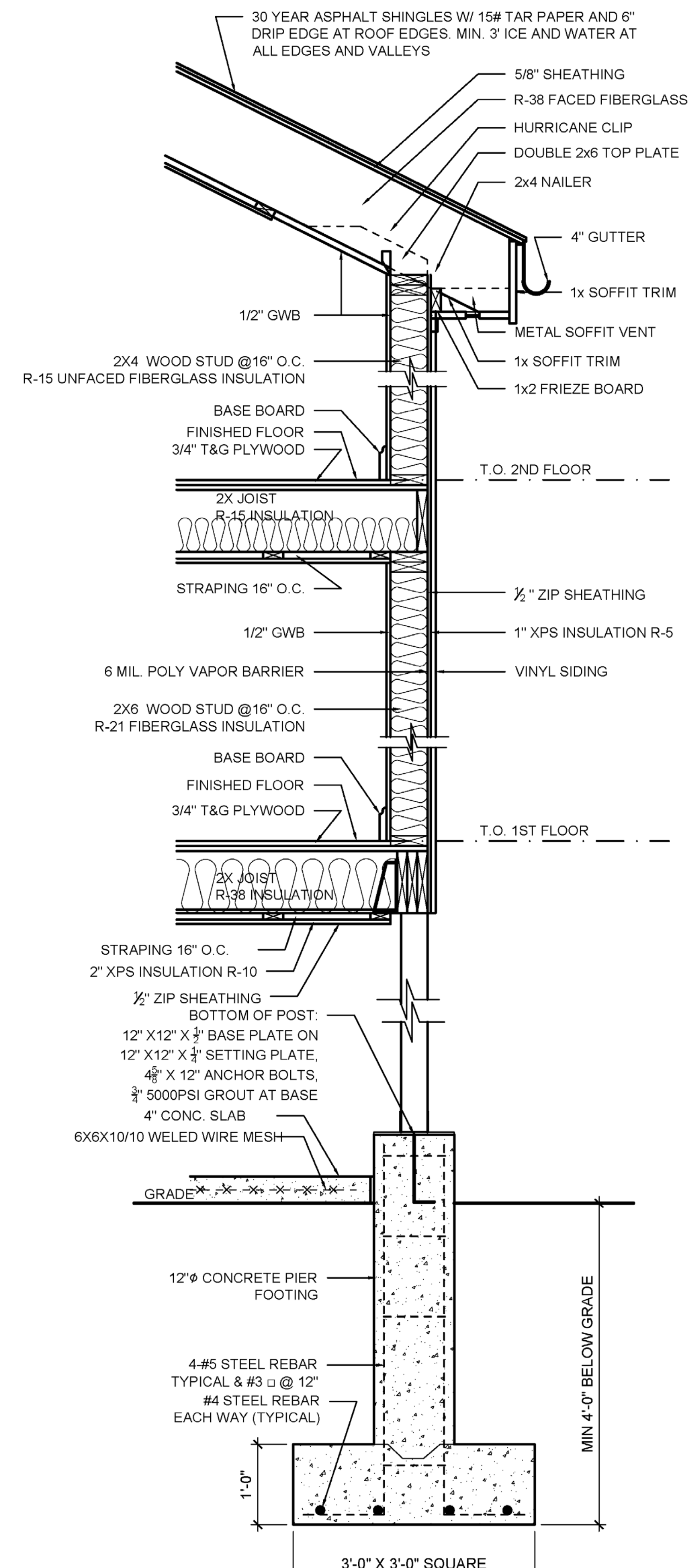


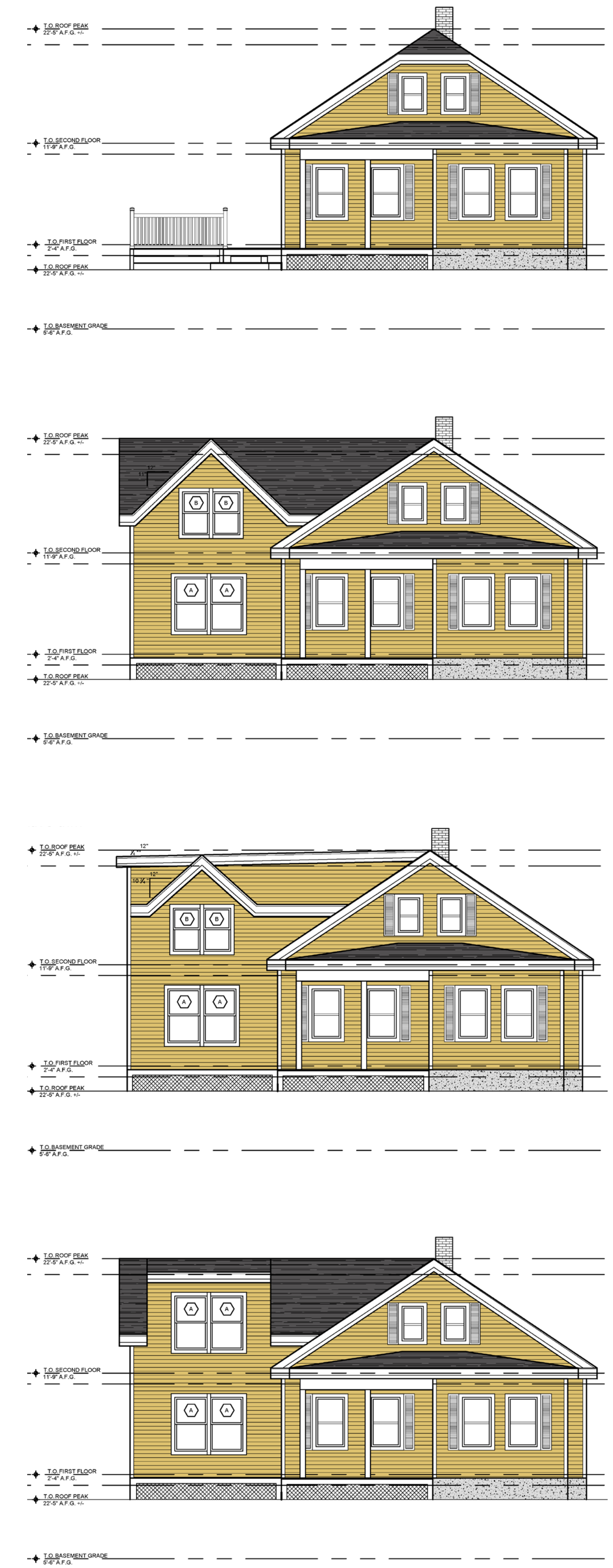
Rendering for Restaurant in Salem, MA





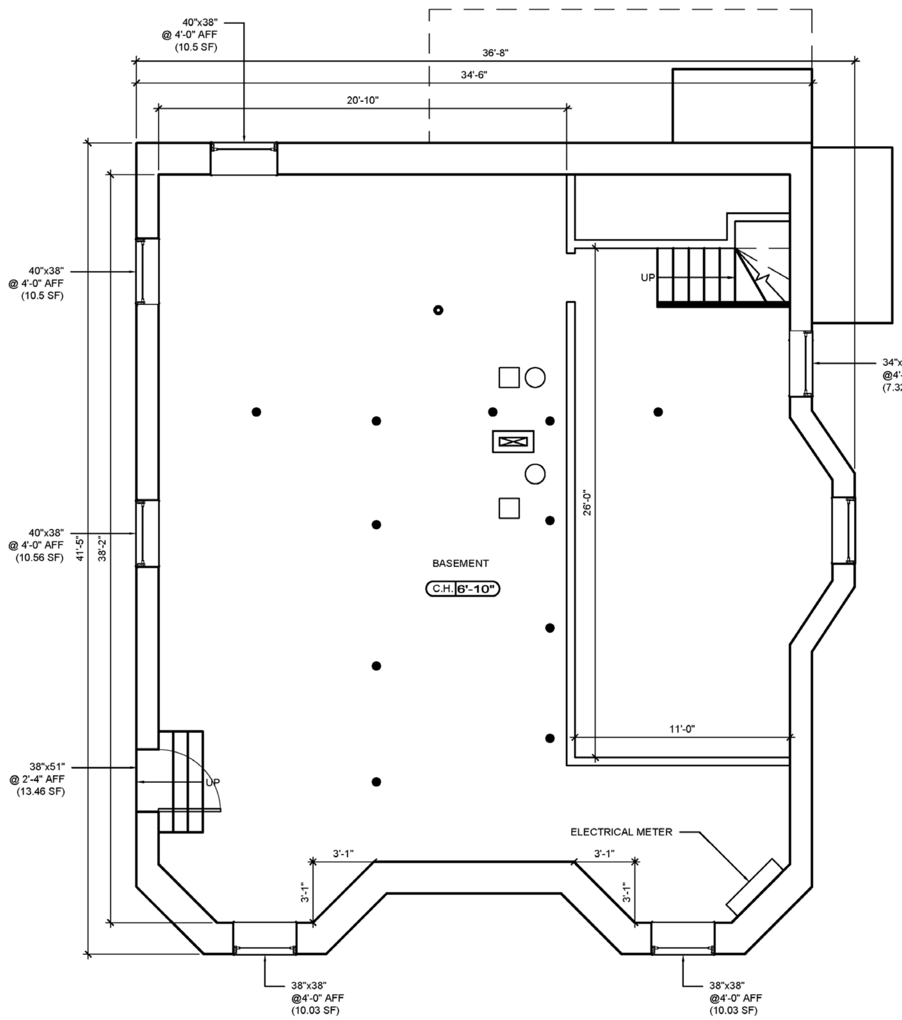




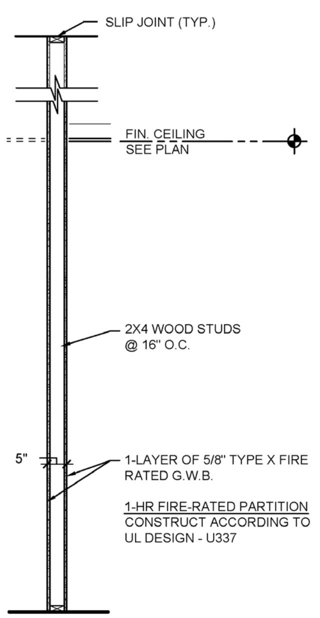


Detail Wall Section and Elevations for House in Millis, MA

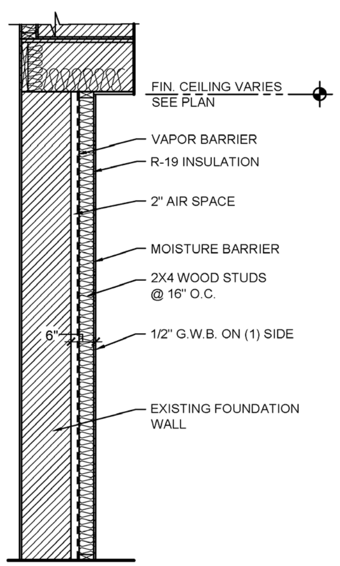
Existing Plan for Basement Renovation in Dorchester, MA



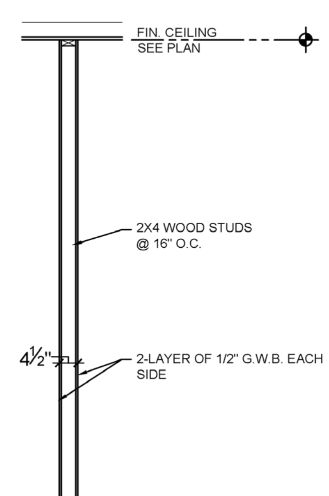
Partition Details



PARTITION TYPE 1
SCALE: 1/2"=1'-0"

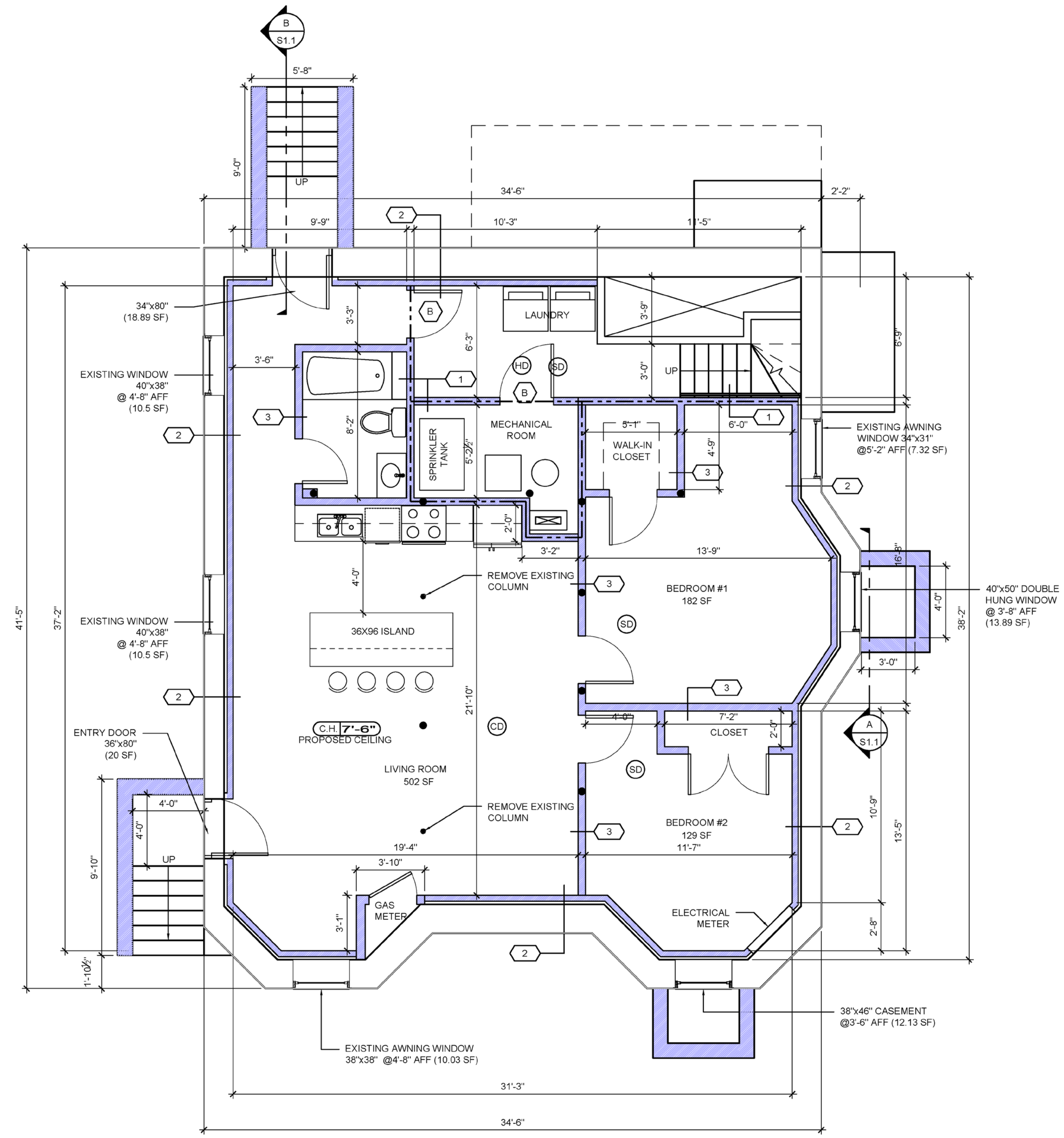


PARTITION TYPE 2
SCALE: 1/2"=1'-0"



PARTITION TYPE 3
SCALE: 1/2"=1'-0"

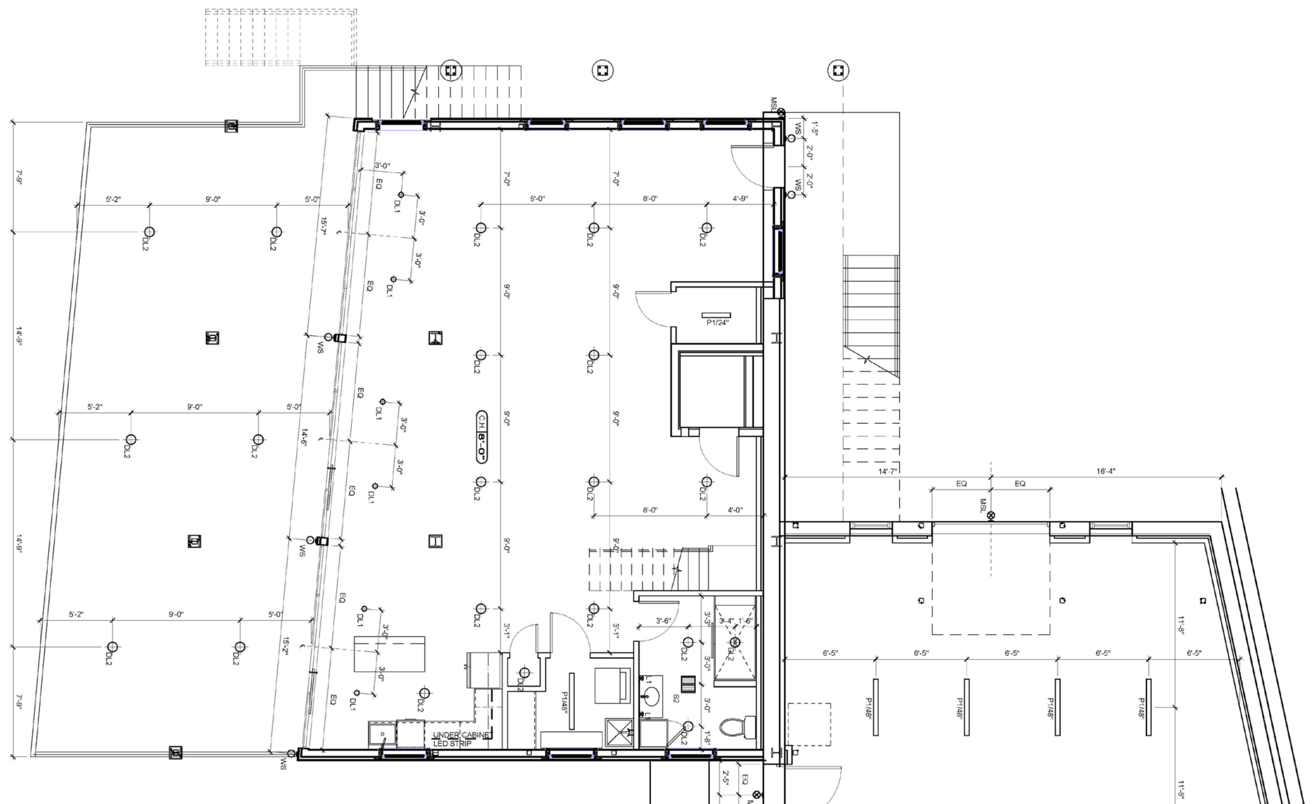
Basement Renovation for a Single-Family Home in Dorchester, MA



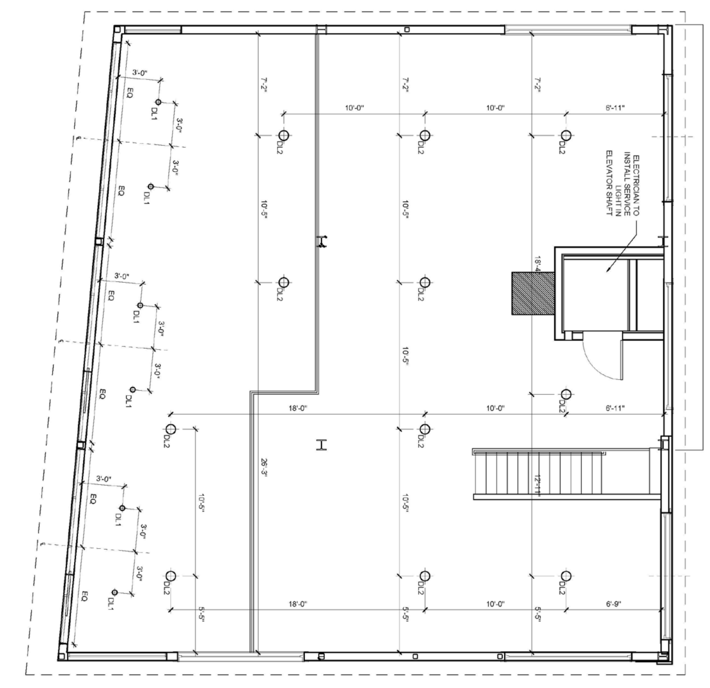
PROPOSED BASEMENT PLAN
SCALE: 1/4" = 1'-0"

Ground-Up Construction in Quincy, MA

Reflected Ceiling Plan and Light Fixtures



LOWER LEVEL FLOOR REFLECTED CEILING PLAN



MEZZANINE REFLECTED CEILING PLAN

R.C.P. SYMBOLS

DL2	RECESSED DOWNLIGHT
DL1	RECESSED DOWNLIGHT
P1/48"	FLUORESCENT WALL LAMP
P1/24"	FLUORESCENT WALL LAMP
Q#/T5	FLUORESCENT UNDER CABINET
BL	BRICK LIGHT
WS	WALL SCONCE
L1	VANITY LIGHT
MSL	MOTION-SENSORED LIGHT
S2	EXHAUST FAN
	UNDER-CABINET LED STRIP
C.H. 10'-0" ACT	CEILING HEIGHT CEILING MATERIAL

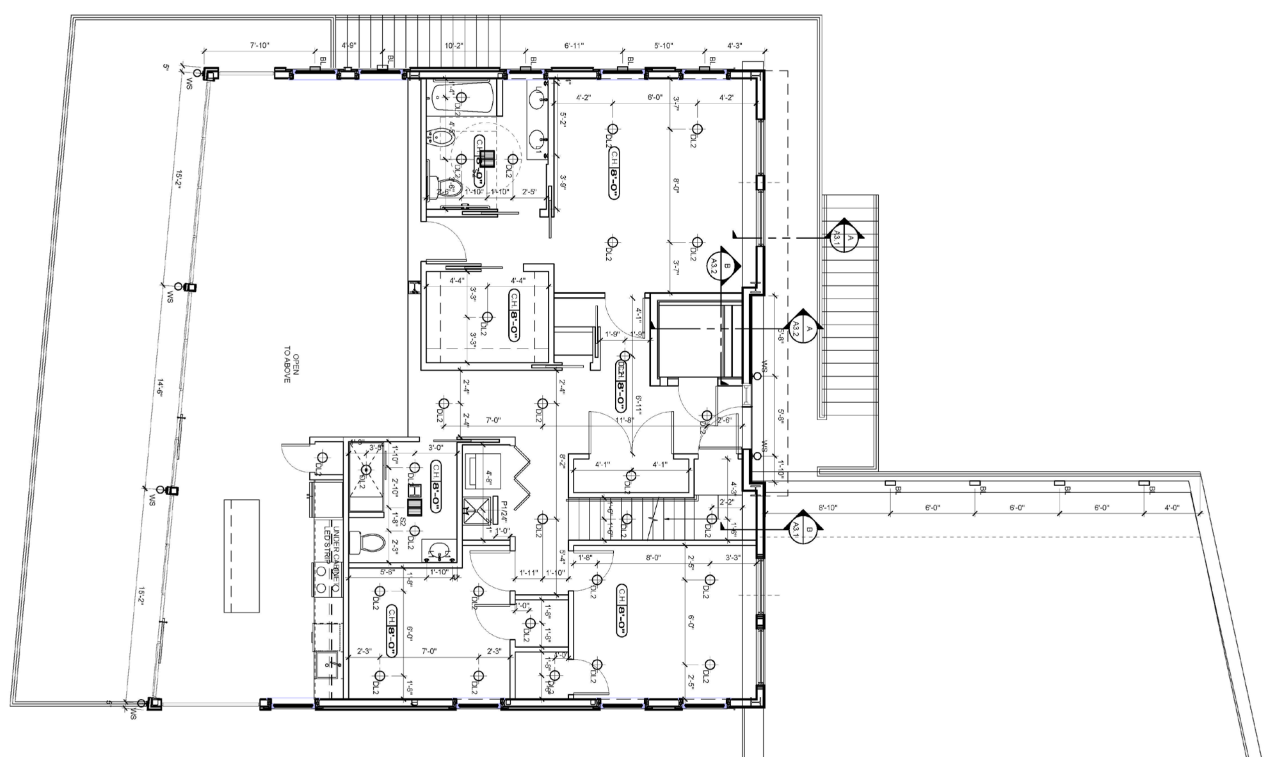
NOTES:
"E" PRECEDING LIGHT FIXTURE DESIGNATION STANDS FOR "EXISTING" LIGHT FIXTURE.

"R" PRECEDING LIGHT FIXTURE DESIGNATION STANDS FOR "RELOCATED" LIGHT FIXTURE.

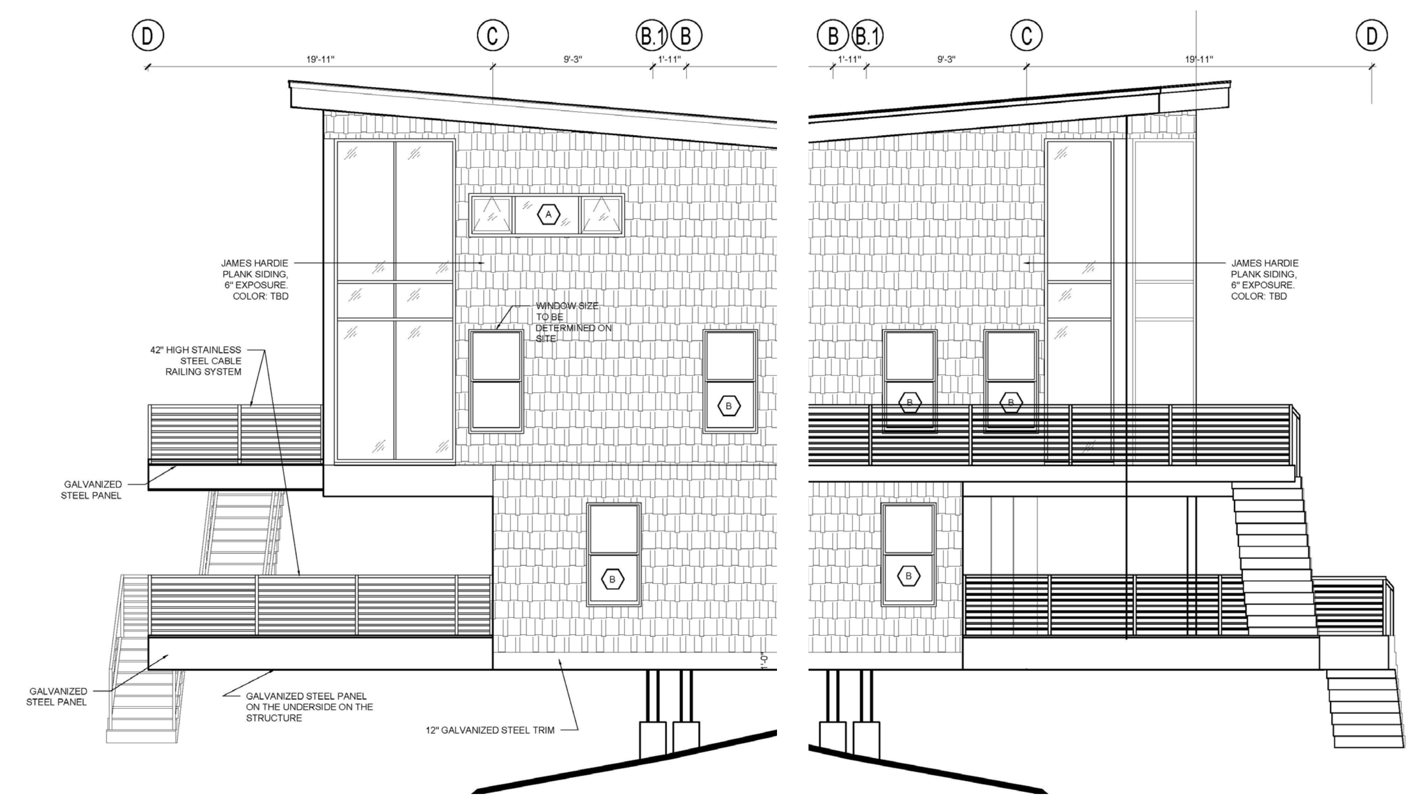
# DENOTES LENGTH IN FEET.

SEE ELEC. LIGHTING PLAN FOR COMPLETE LIGHTING SCHEDULE

NOTHING IS PERMITTED TO BE ATTACHED OR SUSPENDED FROM, OR PENETRATE THE ROOF DECK. G.C. IS REQUIRED TO FRAME AND/OR SUSPEND AS NEEDED TO/FROM THE TOP CORD OF JOISTS OR STRUCTURAL STEEL WHICH EXIST ABOVE TALBOTS SPACE.



1ST FLOOR REFLECTED CEILING PLAN



Window Schedule

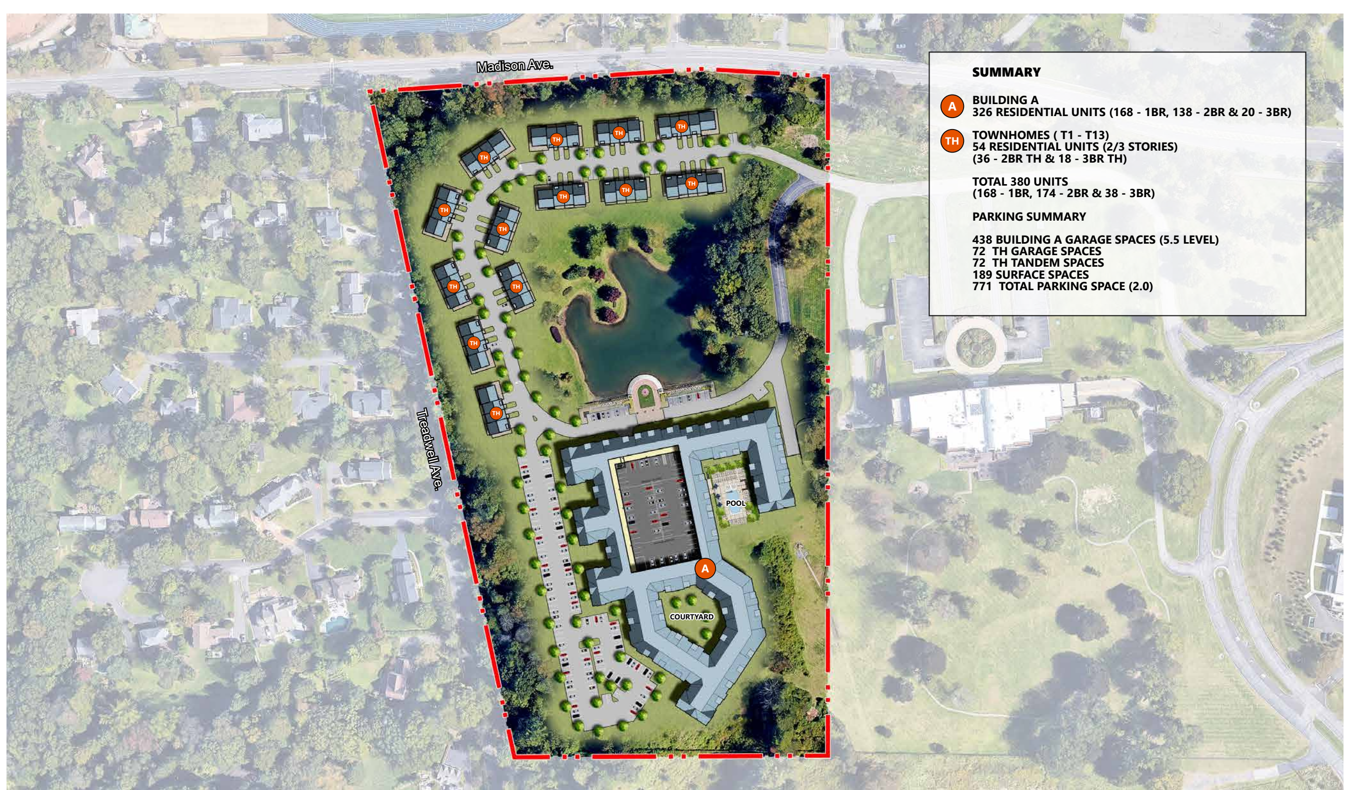
WINDOW SCHEDULE

ITEM	NOTE	MODEL	ROUGH OPENING SIZE	WINDOW SIZE	QTY	REMARK
A	ALUMINUM FRAME, DOUBLE PANE LOW-E		2'-0" X 9'-0"	1'-"11½" X 8'-11½"	7	PICTURE & AWNING
B	ALUMINUM FRAME, DOUBLE PANE LOW-E		3'-0" X 6'-0"	2'-11½" X 5'-11½"	15	DOUBLE HUNG
C	ALUMINUM FRAME, DOUBLE PANE LOW-E		3'-0" X 4'-0"	2'-11½" X 3'-11½"	2	DOUBLE HUNG
D	ALUMINUM FRAME, DOUBLE PANE LOW-E		4'-0" X 6'-10"	3'-11½" X 6'-9½"	4	DOUBLE HUNG

PROFESSIONAL WORK

Firm: The Architectural Team
Location: Boston, MA
Project Phases: Schematic Design and Design Development

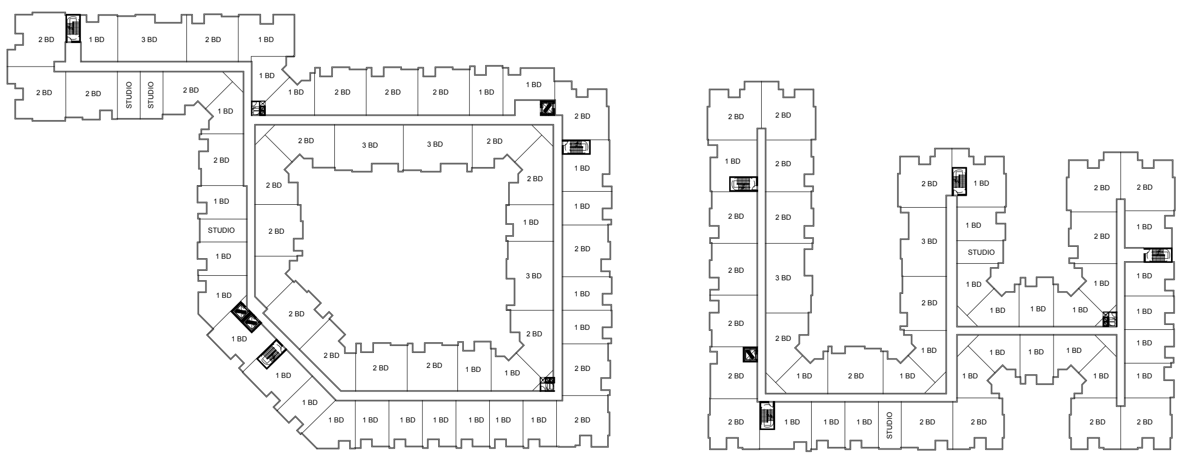
Existing Plan for Basement Renovation in Dorchester, MA



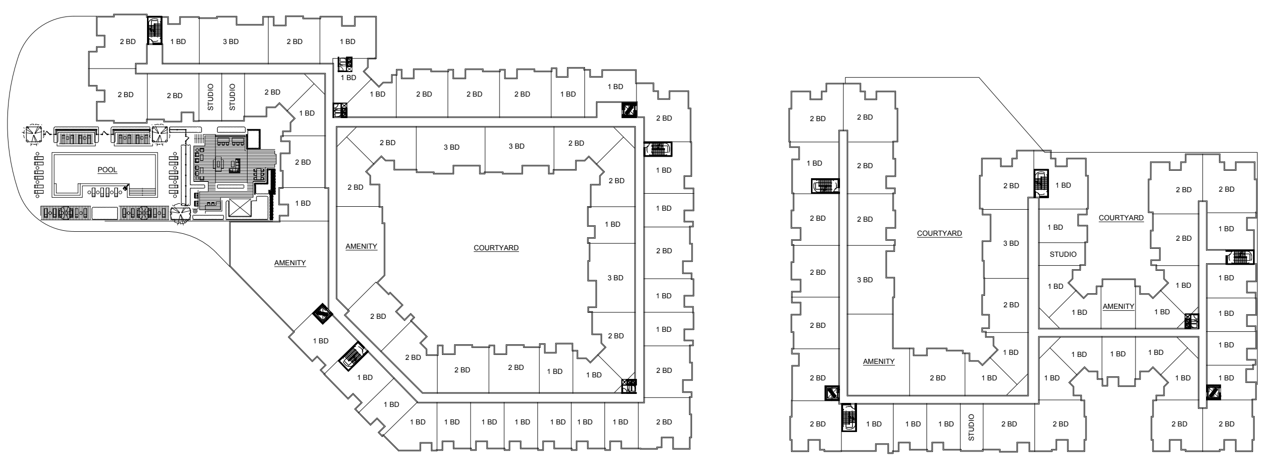
Partition Details

Multi-Unit Residential Proposed Elevations

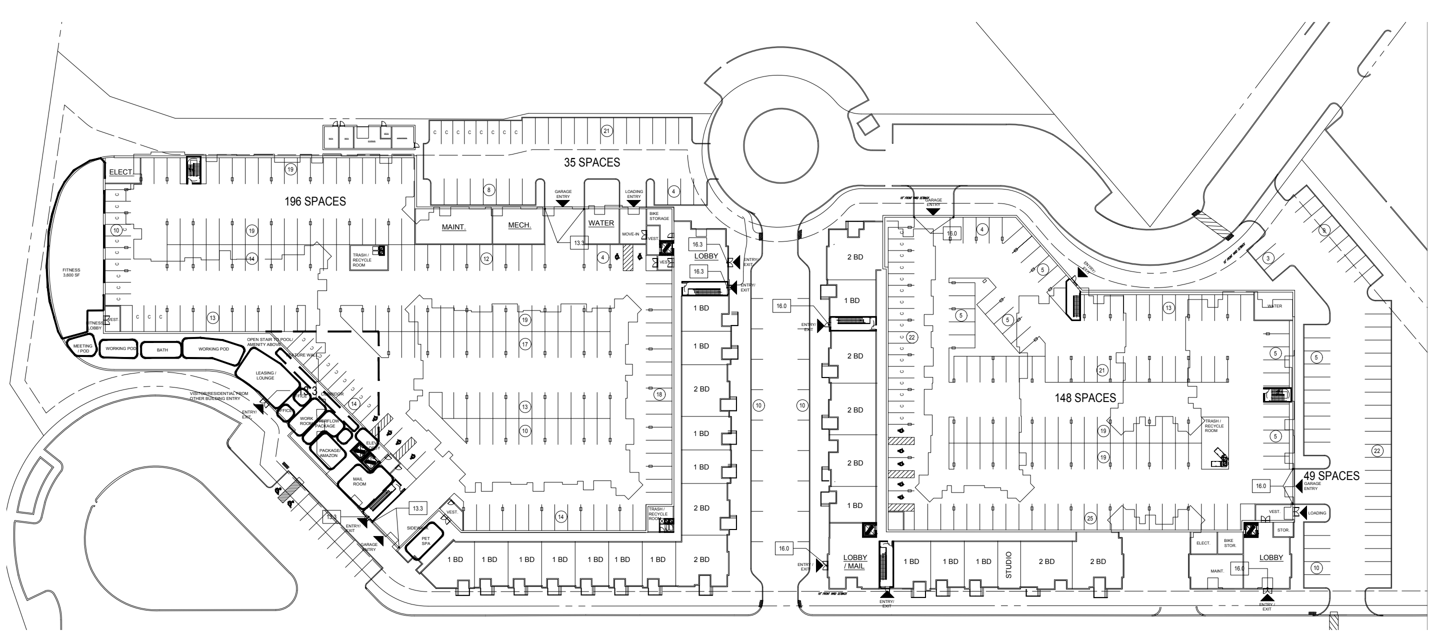
Typical Floor Plan



Second Floor Plan



Ground Floor Plan



Square Footage and Unit Type Matrix

Building A

	GSF			
	Garage	Amenity & Leasing	Residential	Total
1ST	79,364	4,661	17,604	101,629
2ND	0	3,414	61,022	64,436
3RD	0	0	63,644	63,644
4TH	0	0	66,058	66,058
5TH	0	0	66,058	66,058
Total	79,364	8,075	274,386	361,825

Building B

	GSF			
	Garage	Amenity & Leasing	Residential	Total
1ST	55,828	2,400	15,757	73,985
2ND	0	3,085	49,715	52,800
3RD	0	0	50,995	50,995
4TH	0	0	52,800	52,800
5TH	0	0	52,800	52,800
Total	55,828	5,485	222,067	283,380

Building C

	GSF			
	Garage	Amenity & Leasing	Residential	Total
1ST	40,792	1,767	3,696	46,255
2ND	0	2,213	33,954	36,167
3RD	0	0	36,167	36,167
4TH	0	0	36,167	36,167
5TH	0	0	36,167	36,167
Total	40,792	3,980	146,151	190,923

TOTAL PROJECT

	GSF			
	Garage	Amenity & Leasing	Residential	Total
Total	175,984	17,540	642,604	836,128

Unit Mix					Parking Spaces				
Studio	1 BR	2BR	3BR	Total	Parking Garage	Surface Lot	Street Parking	Total	
0	11	3	0	14	196	-	-	224	22 compact
1	23	24	4	52	-	-	-	-	
3	26	25	4	58	-	-	-	-	
3	26	25	4	58	-	-	-	-	
3	26	25	4	58	-	-	-	-	
10	112	102	16	240	196	35	10	241	1.00 per unit

Unit Mix					Parking Spaces				
Studio	1 BR	2BR	3BR	Total	Garage	Surface Lot	Street Parking	Total	
1	4	7	0	12	148	-	-	128	17 compact
2	23	19	2	46	-	-	-	-	
2	25	20	2	49	-	-	-	-	
2	25	20	2	49	-	-	-	-	
2	25	20	2	49	-	-	-	-	
9	102	86	8	205	148	49	10	207	1.01 per unit

Unit Mix					Parking Spaces				
Studio	1 BR	2BR	3BR	Total	Garage	Surface Lot	Street Parking	Total	
0	1	2	0	3	111	-	-	102	17 compact
5	17	8	2	32	-	-	-	-	
5	22	8	2	37	-	-	-	-	
5	22	8	2	37	-	-	-	-	
5	22	8	2	37	-	-	-	-	
20	84	34	8	146	111	24	11	146	1 per unit

Unit Mix					Parking Garage Spaces				
Studio 523 NSF Avg	1 BR 779 NSF Avg	2BR 1,155 NSF Avg	3BR 1,441 NSF Avg	Total	Garage	Surface Lot	Street Parking	Total	
39	298	222	32	591	455	108	31	594	1.01 per unit
7%	50%	38%	5%						